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ABSTRACT

This guide is intended for use in teaching Connecticut's revised animal science curriculum at regional vocational agriculture centers. Like its predecessor, this curriculum includes exploratory (intended for grades 9 and 10) and specialized (intended for grades 11 and 12) animal science units and is based on the following major areas of agriculture: animal science, plant science, agricultural mechanics, and natural resources. In this revised version of the curriculum, each unit has integrated in it a section on related potential employment or entrepreneurship job titles and relevant competencies needed for employment or self-employment success. The exploratory units deal with the field of animal science, animal selection, and basic animal care. The specialized animal science units cover the following topics: animal reproduction and genetics; animal health; animal nutrition; production of dairy cattle, poultry, beef, sheep, swine, horses, goats, rabbits, forage, and specialty animals; dairy production; meat products; care of laboratory animals; veterinary services; pet care and services; and riding and horsemanship. Each unit contains some or all of the following: unit title, unit length, grade(s) taught, objectives, related job titles and relevant competencies, a content outline, teacher activities, student activities, evaluation, resources, a bibliography, and sources of pertinent educational media. (MN)

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REVISING AND UPDATING THE ANIMAL SCIENCE COMPONENTS OF THE CONNECTICUT VOCATIONAL AGRICULTURE CURRICULUM

Prepared by

AGRICULTURAL EDUCATION PROGRAM
DEPARTMENT OF EDUCATIONAL LEADERSHIP
SCHOOL OF EDUCATION
UNIVERSITY OF CONNECTICUT
STORRS, CONNECTICUT

Prepared for

CONNECTICUT STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
BUREAU OF VOCATIONAL SERVICES
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PREFACE

This printing of the Animal Science components of the suggested Connecticut Vocational Agriculture Curriculum has been designed for use in the Connecticut Regional Vocational Agriculture Centers. These centers are multi-staffed with three or more teachers of Vocational Agriculture who have each developed an expertise in one or more of the major areas of agriculture. The curriculum is based on the major areas of agriculture as being Animal Science, Plant Science, Agriculture Mechanics and Natural Resources.

This printing includes an emphasis in the Animal Science Curriculum on Technology. It is a reflection of the ever-changing field of Animal Science in Connecticut.

A full program of Vocational Agriculture is based on four years of enrollment. The student would, in the first two years, be enrolled in exploratory units of study covering all four major areas of study. Development of fundamental skills would be stressed during the exploratory units.

The third and fourth year of enrollment would be made up of an election of units designed to best prepare the individual student to meet his or her vocational objective in agriculture.

Students enrolled in the program will be involved in areas of study common to all of agriculture. These areas include career awareness, agricultural business management, leadership development through involvement in the Future Farmers of America chapter and the practical application of units studied through involvement with the supervised occupational experience program.

This revision includes the integration of a new section in each unit of instruction entitled, "Related Job Titles and Relevant Competencies" for Animal Science. The section is designed to highlight for teachers and students the potential employment or entrepreneurship job titles and relevant competencies needed for employment or self-employment success. The job titles and relevant competencies were identified and validated in the National Agriculture Occupations Competency Study and are included as an integral part of the curriculum.

The curriculum is organized and color coded for ease of use. The Animal Science Units are printed on yellow paper, just as they were in the original printing. The introductory material and Related Job Titles and Competencies are printed on white paper. The page numbers on the units of instruction are coded as follows:

EA - Exploratory Animal Science
SA - Specialized Animal Science

Exploratory units are generally appropriate for students in the ninth and tenth grades, while specialized units are designed for students in grades eleven and twelve.

The Related Job Titles and Relevant Competencies have two page numbers. They are numbered consecutively at the top. The number at the bottom refers to the Page number in the National Agriculture Occupations Competency Study. This page number is maintained for easy reference to the original document.

The organization for sequence of instruction will be at the discretion of certified teachers, administration, and consulting committee members in each center in accordance with availability of staff and facilities. The primary objective is to serve the individual interests and needs of the students.

The original development of the Animal Science Component of this curriculum involved the cumulative efforts of the staff of Animal Science teachers in Connecticut Regional Vocational Agriculture Centers. Teachers authored the units of study. Each unit was pilot tested by a teacher other than the author. Editing to produce a common format has been done by the teachers. It has not been possible to bring into this revised curriculum all of the information which is available. However, teachers are encouraged to use the curriculum as their basic teaching document and to supplement and enrich the curriculum as appropriate. It is intended that as additional information becomes available to teachers while using this curriculum, such information will be entered into the individual teacher's copy on the new unit evaluation form, for use in future curriculum revisions.

The Related Job Titles and Relevant Competencies were identified for each unit of instruction. Much time and effort was spent on identifying those validated activities needed by employed workers to help ensure that the curriculum is competency based.

ACKNOWLEDGMENTS

The Project Director and Project Assistant wish to express their appreciation to those who have contributed to the success and completion of the curriculum.

A sincere thank you is extended to the curriculum writers for their conscientious efforts throughout the project. Special recognition is due to Dr. Patrick B. Mullarney, Head, and Ester Ray, Secretary, Department of Educational Leadership, whose knowledge of University procedures and expert skills made the completion of the project possible.

Special appreciation is extended to Mr. Roger Lawrence, State Consultant, Vocational Agriculture, Mr. Milton Natusch, FFA Executive Secretary, Dr. Valerie Pichanick, Project Officer and Mr. Errol Terrell, Chief, Bureau of Vocational Services, for their involvement in the initiation and direction of the study. We would also like to extend our gratitude to Carolyn W. Sikora for her efficiency and expertise in entering the curriculum on the word processor. Her efforts will make future revisions of the curriculum much easier.

Finally, to the teachers of vocational agriculture in Connecticut, for whom this curriculum is designed to serve, appreciation is extended for their cooperation in providing input and support throughout the study.

Dr. Alfred J. Mannebach
Project Director

John J. Cecchini
Project Assistant

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Basic Animal Care (6 weeks)

Fundamentals of animal care - housing, health, nutrition, terminology . . . . EA 11

ANIMAL SCIENCE CURRICULUM UNITS - SPECIALIZED

Animal Reproduction and Genetics (6 weeks)

Suggested required unit for all Animal Science students. Reproduction systems of animals and their functions - breeding procedures - care from conception through birth - developing breeding programs - basic genetics . . . . SA 1

Animal Health (6 weeks)

Suggested required unit for all Animal Science students. Detecting health problems - restraining animals - sanitation practices - administration of medication and first aid . . . . SA 7

Animal Nutrition (9 weeks)

Suggested required unit for all Animal Science students. Identify parts and functions of digestive systems - identify feeds and feedstuffs - balancing rations - developing a total feeding program . . . . SA 11

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RELATED JOB TITLES AND RELEVANT COMPETENCIES

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ANIMAL SCIENCE CURRICULUM

UNIT: Introduction to Animal Science

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grade 9

OBJECTIVES: The students will be able to:

1. recognize common breeds of Beef, Dairy, Goats, Horses, Poultry, Sheep and Swine.
2. recognize external body parts of animals and recognize the "ideal" type.
3. recognize and describe the related terminology associated with each breed.
4. identify and describe the products obtained from each species.
5. describe the nutritional and economical value of animal products.
6. identify the leading states and countries in the production of each species.
7. identify "per capita" consumption of animal products in the past and present; and discuss future trends.
8. describe the different rearing and management programs/operations for each species.
9. identify and describe the digestive systems for each species.
10. apply principles of animal selection as they relate to keeping animals for fun or for profit.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Cattle Ranch Foreman	17:2(a, b, c), 18:4(a), 18:5(b), 18:6(s)
Beef Cattle Ranch and Farm Hand	23:1(h, n), 24:3(a)
Dairy Farm Manager	53:14(d, g, h), 54:14(l), 57:26(h)
Horse Production Employee	61:1(d)
Sheep Rancher	72:4(a), 75:8(b)
Sheep Ranch Foreman	80:1(a), 81:1(h)
Swine Farmer	120:1(a), 122:3(a)

CONTENT:

I. Identification of breeds

  A. Beef - Bovine
  B. Dairy - Bovine
  C. Goats - Caprine
  D. Horses - Equine
  E. Poultry - Avian
  F. Sheep - Ovine
  G. Swine - Porcine

II. Parts of the live animal

  A. cattle

    1. beef
    2. dairy

  B. goats
  C. horses
  D. poultry
  E. sheep
  F. swine

III. Terminology

  A. As it relates to . . .

    1. species
    2. gender
    3. housing
    4. reproduction
    5. management
    6. nutrition
    7. health

IV. Products obtained from animals

  A. wool
  B. feathers
  C. meat
  D. milk
  E. eggs
  F. work
  G. pleasure/entertainment

V. Basic Animal Science Enterprises

  A. cattle - beef

    1. purebred
    2. cow-calf
    3. stocker

  - 4. feeder
  - 5. baby beef
  - 6. grass fed beef

- B. goats

  - 1. purebred
  - 2. market

    - a. meat
    - b. milk
    - c. wool

  - 3. breeding

- C. horses
- D. poultry

  - 1. fryers/broilers
  - 2. turkeys
  - 3. breeding
  - 4. game birds

- E. sheep

  - 1. purebred
  - 2. market
  - 3. breeding
  - 4. range operations
  - 5. feed lot
  - 6. farm flock (small farm operations)

- F. swine

  - 1. purebred
  - 2. breeding
  - 3. market
  - 4. specific pathogen free
  - 5. confined area operations

- G. cattle - dairy

  - 1. purebred
  - 2. commercial
  - 3. Replacements
  - 4. Veal

VI. Digestive Systems

- A. types that are common to livestock

  - 1. ruminant - cattle, goats, sheep
  - 2. monogastric - swine, humans
  - 3. monogastric with a functional cecum - horse
  - 4. avian - chickens, turkeys

VII. Nutritional and economical value of products

- A. protein
- B. carbohydrates
- C. fats
- D. minerals
- E. vitamins
- F. textiles
- G. research
- H. entertainment/pleasure
- I. cosmetics

VIII. Production statistics

- A. leading States for each species
- B. leading Country for each species
- C. per capita consumption of each species and associated product

IX. Animal selection

- A. evaluate pedigrees and records
- B. each species' "ideal type"

TEACHER ACTIVITIES:

1. Develop sets of flashcards with breeds of each species.

2. Use transparencies for describing and labeling animal parts.

3. Procure animal models for class demonstrations.

4. Prepare worksheets, Bingo games, jeopardy games, wordsearches, crosswords for body parts, breeds, and terminology review.

5. Arrange field trips for viewing different operations.

   A. students supervised occupational experience programs

      1. project situations
      2. placement situations

6. Give class lectures and demonstrations.

7. Use media materials whenever possible.

8. Classroom discussion based upon pupil experience.

STUDENT ACTIVITIES:

1. Keep a notebook of handout materials and class notes.
2. Develop a "scrapbook" of identified breeds and their appropriate characteristics.
3. Create own word searches and crosswords using class notes.
4. Bingo and jeopardy games.
5. Color or paint the different breeds of animals on a "generic" type or model.
6. Play the "animal parts" game from the Extension Service.
7. Discuss own animals and experiences.

EVALUATION:

1. Review notebooks.
2. Quizzes and tests.
3. Scores on slide identification/flashcard identification of animal breeds.

RESOURCES:

1. Pictures.
2. Breed association publications.
3. Local farms and student projects.
4. Materials available from breed association.
5. Animal shows and fairs.
6. Taking photographs of student's animals to use as flashcards.
7. County Extension Services.

BIBLIOGRAPHY:

1. Blakely and Bade. The Science of Animal Husbandry. Reston, Virginia: Reston Publishing Co., 1978.
2. Ensminger, M.E. The Stockmans Handbook, Fifth Ed. Danville: Interstate, 1978.

3. Peterson, Christensen, Nelson. Working in Animal Science. New York: McGraw-Hill, 1978.

4. Ulmer, Donald E., and Elwood M. Jurgenson, Approved Practices in Raising and Handling Horses. Danville: Interstate, 1974.

5. California Vocational Agriculture Curriculum Guidelines Instructional Unit, "Basic Animal Science".

MEDIA:

1. Slides: Photographic Services; Texas A & M University, Goodwin Hall, College Station, Texas. 77843.

2. Filmstrips.

3. Flashcards.

4. Breed Association Movies.

INDIVIDUAL TEACHER UNIT REVIEW

This addition to the Curriculum Guide is included after each unit. After teaching this unit of instruction, please complete the form below. It is intended to be used by curriculum writers the next time this curriculum undergoes revision. It is also intended for your use as an aid in periodic updating as you continually teach this unit.

A. ADDITIONAL AND UPDATED TEACHING METHODS:

1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resources	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Animal Selection

LENGTH: Three weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 9 or 10

OBJECTIVES: The students will be able to:

1. recognize common breeds of Dairy, Beef, Horses, Sheep, Goats, Swine and Poultry.
2. recognize external body parts of animals.
3. use proper vocabulary in describing the conformation of livestock.
4. describe how conformation relates to function and performance of an animal.
5. apply principles of animal selection as they relate to keeping animals for fun and profit.
6. give sets of oral and written judging reasons.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Cattle Ranch Foreman	18:5(a, b)
Beef Assistant Cattle Ranch Foreman	20:2(a), 21:4(a)
Beef Cattle Ranchhand Farm Hand	23:1(n)
Beef Feed Lot Foreman	34:2(a, i, j), 35:5(a)
Dairy Farm Manager	53:14(a, c, d, f, g, h, l),
Horse Production Employee	61:1(a, b, d)
Broiler Grower	
Egg Grower	
Sheep Rancher	73:4(a, g), 75:8(a, b, c, d, e, i, k, l, m), 77:12(a)
Sheep Feed Lot Foreman	106:5(a, f, i, j), 106:6(e)
Swine Farmer	120:1(a, b, m), 122:3(a, f, h, l)

CONTENT:

I. Dairy Cattle

   A. identification of breeds
   B. external parts of the live animal and their function
   C. dairy related vocabulary
   D. desirable and undesirable conformation traits
   E. written and oral reasons
   F. judging of pedigrees and performance records

II. Beef Cattle

A. identification of beef breeds
B. external parts of the live animal
C. beef related vocabulary
D. desirable and undesirable conformation traits
E. written and oral reasons
F. evaluating dam and sire indexes

III. Sheep

A. identification of sheep breeds
B. external parts of the live animal
C. sheep related vocabulary
D. desirable and undesirable conformation traits
E. written and oral reasons
F. wool grading

IV. Swine

A. identification of swine breeds
B. external parts of the live animal
C. swine related vocabulary
D. desirable and undesirable conformation traits
E. written and oral reasons

V. Goats

A. identification of goat breeds
B. external parts of the live animal
C. goat related vocabulary
D. desirable and undesirable conformation traits
E. written and oral reasons

VI. Horses

A. identification of horse breeds
B. external parts of the live animal
C. horse related vocabulary
D. desirable and undesirable conformation traits (according to type)
E. written and oral reasons
F. judging under saddle classes
G. judging harness classes
H. giving oral and written reasons for performance classes

VII. Poultry

A. identification of poultry breeds
B. differentiation between layers and broilers
C. external parts of the live bird
D. poultry related vocabulary

E. desirable and undesirable conformation traits (including bleaching, handling quality)
F. egg grading
G. chicken carcasses and chicken patties
H. written and oral reasons

TEACHER ACTIVITIES:

1. Develop sets of flash cards.
2. Procure animal models for class demonstrations.
3. Prepare worksheets for breeds, body parts, terminology.
4. Use slides for practice judging.
5. Arrange field trips for judging classes.
6. Prepare slide sets for breed identification and practice judging.
7. Give lectures and demonstrations.
8. Secure animal pedigrees and production records.

STUDENT ACTIVITIES:

1. Keep notebook of lectures and handouts.
2. Judge classes of livestock.
3. Prepare written and oral reasons.
4. Evaluate animal pedigrees and production records.

EVALUATION:

1. Review handbook.
2. Quizzes and tests.
3. Scores on judging.
4. Scores on written and oral reasons.

RESOURCES:

1. Local farms.
2. University of Connecticut horse facility.
3. Student projects.
4. Poultry Judging Manual, Nebraska Cooperative Extension Service, 4H.

5. Booklets available from Cornell Instructional Materials Service, Cornell University, Department of Education, 24 Roberts Hall, Ithaca, NY 14853-5901:

a.	F 502	Dairy Cattle Breeds
b.	F 506	Judging Dairy Cattle
c.	F 508	Techniques of Judging Dairy Cattle
d.	F 512	Judging Guide for Dairy
e.	F 602	Judging Light Horses
f.	F 6065	Breeds of Light Horses
g.	F 614	Breeds of Beef Cattle
h.	F 617	Judging and Grading Beef Cattle
i.	F 622	Judging Sheep
j.	F 631	Judging and Grading Swine

MEDIA:

1. Slides available from IMS:

a.	F630ST	Swine Evaluation
b.	F6325	Identifying Breeds of Swine

2. Slides available from Curriculum Instructional Materials Center, State Department of Vocational and Technical Education, 1500 West Seventh Avenue, Stillwater, Oklahoma 74074-4364:

a.	Ag7010	Livestock breeds
b.	Ag7007	Judging Ewe Lambs
c.	Ag7000	Judging the Dairy Cow
d.	Ag7017	Colored Breeds (Dairy) Judging
e.	Ag7022	1984 Houston FFA and 4-H Livestock Judging Contest
f.	Ag7019	Houston Jr. Horse Judging Contest
g.	Ag7025	Youth Horse Judging Contest
h.	Ag70028	Evaluate Precooked, Breaded Chicken Patties
i.	Ag7023	Houston Intercollegiate Sheep and Swine Judging Contest.

3. Slides from Vocational Education Productions California Polytechnic State University, San Luis Obispo, CA 93407:

a.	1-428-200D	Livestock Judging Series
b.	1-496-200D	The Dairy Judging Kit
c.	1-460-200D	Poultry Judging Part I & II
d.	I-454-230D	Grading Eggs for Quality

INDIVIDUAL TEACHER UNIT REVIEW

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1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resources	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Basic Animal Care

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grade 10

OBJECTIVES: The students will be able to:

1. recite various life statistics for livestock and common small animals.
2. describe characteristics of healthy animals.
3. list indications of sick animals.
4. outline general procedures implemented to keep animals healthy.
5. describe basic principles of animal feeding and nutrition.
6. describe basic principles of animal reproduction.
7. describe basic principles of animal genetics.
8. apply principles of animal housing.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Cattle Ranch Foreman	17:2(a, b, d, j), 19:6(d)
Beef Cattle Assistant Ranch Foreman	20:2(c, d, e, g, h), 21:6(a)
Beef Cattle Ranch and Farm Hand	23:1(a, b, c, e, g, i, l, m, n, o, r, t), [illegible] 1(aa, ff, gg, ii) 24:3(g)
Beef Cattle Inseminator	30:1(a, b, f), 30::2(a, b, c), 30:3(a), 31:3(e)
Beef Veterinary Assistant	32:1(a-r), 33:2(a-h), 33:3(a-e), 33:4(a-d)
Beef Feed Lot Farmer	34:2(a, d, f, g, h), 35:6(a, e)
Beef Cattle Buyer	40:1(k), 40:2(a, b, c, f, h)
Dairy Farm Manager	50:4(a-h), 50:5(a-e), 50:6(a-f), 51:7(a-d), 51:8(a-i), 53:13(m), (r)
Horse Production Employee	62:4(a-d)
Sheep Rancher	74:6(a-bb), 75:6 (cc-hh)
Small Animal Supplier	116:1(a-d), 117:2(b-g), 118:7(a-e), 118:8(a-c), 118:9(b)
Swine Farmer	121:1(p), 121:2(a-o), 121:2(p-r)

CONTENT:

I. Signs of a healthy animal

  A. general appearance and conformation
  B. behavior

II. Life statistics for livestock and common small animals

  A. normal body temperature
  B. pulse rate
  C. gestation
  D. estrus
  E. average birth weight
  F. age of puberty
  G. age of maturity

III. How to keep animals healthy

  A. nutrition
  B. housing
  C. environment
  D. preventive programs
  E. vaccinations and wormings
  F. cleaning, disinfection, sanitation
  G. insect control

IV. Indications of sick animals

  A. drop in temperature
  B. loss of appetite
  C. separations
  D. mucus discharges
  E. coughing, wheezing, etc.
  F. loss of hair

V. Animal disease

A. introduction to disease-definitions
  B. types of diseases

    1. bacterial
    2. viral
    3. external and internal parasites
    4. nutritional
    5. genetic
    6. plant poisonings
    7. dystocia

VI. Animal restraint

  A. restraint of dogs, cats and small animals

  B. restraint of sheep, swine and goats
  C. restraint of horses and cattle

VII. Disease detection

A. law of comparison
B. any deviation from normal
C. fecal examination
D. microscopic examination of blood, urine and material of infected area
E. CMT mastitis test

VIII. Basic animal nutrition

A. digestion, absorption, metabolism
B. digestive systems: ruminant and non-ruminant
C. feedstuffs

    1. colostrum
    2. milk
    3. concentrate
    4. roughages

D. weaning
E. food nutrients
F. principles of balanced rations

IX. Basic animal genetics and breeding

A. genetics
B. systems of breeding
C. selection of mates

X. Basic animal reproduction

A. male reproductive organs
B. female reproductive organs
C. breeding
D. artificial insemination

XI. Principles of housing animals

A. protection to animals
B. space requirements
C. ventilation, heat, lights, humidity
D. feeding
E. cleaning
F. specialized areas (i.e. maturity)
G. labor efficient
H. fencing

TEACHER ACTIVITIES:

1. Class lectures and demonstrations.

2. Utilize media where appropriate.

3. Plan and carry out field trips.

STUDENT ACTIVITIES:

1. Maintain notebooks on lectures, media, and field trips.
2. Participate in field trips.
3. Create information charts (i.e., diseases).

EVALUATION:

1. Review notebooks.
2. Quizzes and tests.
3. Field trip report forms.
4. Project grades.
5. Homework assignments.
6. Class participation and cooperation.

RESOURCES:

1. Veterinarians and assistants.
2. University of Connecticut.
3. Local Cooperative Extension.
4. Local trainers, herdsmen, shepherds, etc.
5. Local farms, kennels, zoos, etc.

BIBLIOGRAPHY:

1. Campbell, J.R., Lasley, J.F. The Science of Animals that Serve Mankind. New York: McGraw-Hill, 1975.
2. Ensminger, M.E. Animal Science. Danville: Interstate, 1983.
3. Peterson, P., Christensen, A.C., Nelson, E.A. Working in Animal Science. New York: McGraw-Hill, 1978.

MEDIA:

1. Slides available from Vocational Instructional Services, Texas A & M University, College Station, Texas 77843.

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2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resources Address Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Animal Reproduction and Genetics

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. discuss the importance of livestock breeding and genetics.
2. identify the parts of the male and female reproductive tract and their functions.
3. describe the Estrous Cycle and its functions.
4. identify the signs of heat.
5. describe artificial insemination and its effects on the livestock industry.
6. develop and plan breeding programs for animals.
7. discuss new technology and the changes in the industry.
8. learn care of the animals before, during and after parturition.
9. describe a basic reproductive health care plan for animals.
10. describe the fundamental principles of genetics.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Cattle Ranch Foreman	17:2(b, f), 18:4(a), 18:6(a), 19:6(t)
Beef Assistant Cattle Ranch Foreman	20:2(c, f), 21:4(a), 22:6(i)
Beef Cattle Ranch and Farm Hand	23:1(a-e), 24:1(y), 25:4(b)
Beef Cowpuncher	26:1(a-d), 26:1(h), 26:1(l), 26:1(x)
Beef Ranch Laborer	28:1(a)
Beef Artificial Inseminator	30:1(a-f), 30:2(a-h), 30:3(a), 31:3(b-e)
Dairy Farm Manager	49:1(a), 52:13(a-b), 53:13(c-f), 53:13(j-m)
Horse Production Employee	62:9(a-c), 63:11(a)
Sheep Rancher	75:7(x), 76:9(a-d), 78:16(a-k)
Sheep Ranch Foreman	81:5(a-g), 82:5(h-r), 83:9(f), 83:10(a-e)
Sheep Ranch Hand	89:3(f)
Sheep Herder	94:5(e)
Swine Farmer	120:1(f-h), 124:5(f)

CONTENT:

I. Identification and functions of reproductive parts

   A. male parts
   B. female parts

II. The Estrous Cycle

   A. definitions
   B. parts of the cycle
   C. hormones effecting the cycle

III. Detecting heat

   A. time of estrus
   B. signs of estrus
   C. heat detection aids

      1. cattle
      2. horses
      3. swine
      4. sheep
      5. goats

IV. Artificial insemination

   A. history
   B. uses of artificial insemination
   C. proper techniques of artificial insemination
   D. artificial insemination equipment required
   E. careers in the industry
   F. sire selection
   G. new technology

      1. sexing embryos
      2. embryo transfers
      3. freezing embryos

V. Developing and managing a breeding program

   A. effective recordkeeping systems
   B. properly managing a breeding program
   C. use of prepared computer software in regards to breeding programs
   D. evaluate the various systems of mating for livestock improvement
   E. performance testing systems.

VI. New technology

   A. synchronization of estrus
   B. embryo transfer

C. cowside tests

1. pregnancy and estrus detection for lactating animals

VII. Care of animals before, during and after parturition

A. care at time of conception
B. care during gestation
C. parturition

1. signs
2. care

D. care after parturition

1. dam
2. offspring

VIII. Reproductive health

A. identification of common breeding problems

1. causes
2. signs
3. treatment
4. control/prevention

IX. Principles of genetics

A. definition of terms

1. allele, chromosome, gene, gamete
2. dominance, recessives
3. breeding programs

a. purebreeding
b. linebreeding
c. inbreeding
d. crossbreeding

4. phenotypic-genotypic ratios
5. punnet square

TEACHER ACTIVITIES:

1. Class lectures.

2. Class and lab demonstrations of skills.

3. Use charts, transparencies, and animal reproductive tracts to identify parts.

4. Use pictures or animals to demonstrate heat.

5. Prepare materials for students to use in developing breeding programs.

6. Develop an artificial insemination clinic for interested students.

7. Look at semen under a microscope for:

   a. morphology
   b. mortality

8. Field trips:

   A. farms

      1. to view artificial insemination
      2. to view estrus synchronization
      3. to view breeding charts and recordkeeping programs

   B. sire studs
   C. semen distributor

9. Guest Speakers:

   A. local farmers
   B. veterinarians related to reproductive health of animals
   C. semen distributor
   D. cooperative and/or independent artificial insemination representative

10. Use animals and/or audio-visual materials to demonstrate parturition signs and care.

11. Explain and demonstrate the principles of genetics.

12. Use audio-visual aids wherever possible.

STUDENT ACTIVITIES:

1. Maintain a notebook, including class notes and handouts.

2. Fill-in charts on reproductive parts.

3. Identify parts of a reproductive tract (use a preserved or fresh tract).

4. Practice artificial insemination on the tract; then a live animal.

5. Properly exchange semen to and from liquid nitrogen tanks.

6. List signs of heat and parturition.

7. List steps in the care of offspring after parturition.
8. Plan, develop and/or build a breeding wheel or chart for a group of species of animal.
9. Breed and raise animals at school.
10. Using a computer, develop a breeding plan for an animal.
11. Care for animals at parturition and/or talk to a veterinarian about it.
12. Do crosswords, word searches, BINGO, and jeopardy games to practice skills and theories learned.

EVALUATION:

1. Quizzes.
2. Test.
3. Notebook review.
4. Performance on field trips.
5. Computer programs.

RESOURCES:

1. Artificial insemination technician and catalogs.
2. Breeding farms.
3. Extension Service.
4. Farm Managers.
5. Nasco; AI equipment, preserved reproductive tracts.
6. Slaughterhouse.
7. Veterinarian.
8. "Calf Check": A pregnancy and estrus detection aid for lactating cattle.

   American Diagnostic Sales, Inc.
   P.O. Box 5117, Westport, CT 06881

BIBLIOGRAPHY:

1. California Vocational Agriculture Curriculum Guidelines Instructional Unit. "Livestock Breeding and Genetics".
2. Ensminger, E.M. Stockman's Handbook. Danville: Interstate, 1978.
3. Hoard's Dairyman. Dairy Cattle Fertility and Sterility. Fort Atkinson: WD Hoard, 1981.
4. Hoard's Dairyman. Herd Health. Fort Atkinson: WD Hoard, 1981.
5. Roediger, Roger D. Livestock Breeding. Ohio Agriculture Education Curriculum Materials Service. 1970.

MEDIA:

1. Genetics Overhead Transparency Masters, Vocational Education Production, California Polytechnic State University, San Luis Obispo, CA 93401.
2. Animal Cell, Reproduction and Genetics and Plant Genetics, Overhead Transparencies from NASCO.
3. "Development of Chicken Embryos", IMS, 3 Stone Hall, Cornell University, Ithaca, New York 14857.
4. "Miracle of Life", NOVA.
5. "Pre-Natal Development of the Calf", California State Polytechnic College, Instructional Materials Service.
6. "Signs of Heat in Cattle", Nasco, Fort Atkinson, WI 53538.
7. "Recovery of the Uterus after Calving", Nasco, Fort Atkinson, WI 53538.

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B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resources	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Animal Health

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. describe characteristics of a normal animal.
2. discuss recommended practices for good health and disease control.
3. list common causes of disease.
4. identify signs of ill health.
5. discuss treatments available for common ailments.
6. demonstrate skills in administering medication.
7. outline causes, transmission, signs, treatment, prevention, and mortality rates of common livestock and pet diseases.
8. determine a vaccination schedule for individual species of livestock and pets.
9. describe prevention, detection, and control recommendations for internal and external parasites.
10. demonstrate skills in animal husbandry practices.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Cattle Ranch Foreman	17:2(d, j)
Beef Assistant Cattle Ranch Foreman	20:2(h), 21:6(g)
Beef Cattle Ranch and Farm Hand	23:1(a, b, d, g, l, t, 25:6(d)
Beef Cowpuncher	26:1(a, b, c, k, o, q, u, v), 27:4(e)
Beef Ranch Laborer	28:1(a, c, d, g)
Beef Veterinary Assistant	32:1(a-h), 32:1(j-l), 32:1(o), 33:2(a), 33:3(a-d), 33:4(a, d)
Beef Feed Lot Foreman	34:2(g)
Beef Assistant Feed Lot Foreman	37:2(c, d, f)
Beef Cattle Buyer	40:2(a-c), 40:2(f), 40:2(h)
Beef Feed Lot Laborer	42:1(f-h)
Beef Feed Lot Hand	45:1(a-c), 45:1(f, h, l, n, p, q, r), 46:6(a, c)

Dairy Farm Manager	50:4(a-h), 50:5(a-e), 50:6(a-f), 51:7(a-d), 51:8(a-f)
Horse Production Employee	62:4(a-d)
Broiler Grower	65:5(a-d), 65:7(a-h)
Egg Producer	67:6(a-e), 67:9(a-h)
Turkey Grower	70:8(a-h)
Sheep Rancher	74:6(a-hh)
Swine Farmer	120:1(a-r)

CONTENT:

I. Normal animal

   A. animal attitude and behavior
   B. appearance
   C. temperature, pulse and respiration

II. Disease control

   A. sanitation
   B. housing and management considerations
   C. isolation and quarantine
   D. vaccination and immunization
   E. economic effect of disease
   F. zoonosis

III. Causes of disease

   A. nutrition
   B. genetics
   C. infectious agents
   D. injuries
   E. reproductive problems

IV. Signs of ill health

   A. deviation from normal
   B. disease testing

V. Treatment

   A. first aid
   B. bandaging
   C. when to call the veterinarian
   D. selective available treatments
   E. administering medication

      1. oral
      2. topical
      3. injections

VI. Common Diseases

*cause
*transmission
*treatment
*prevention
*signs and description
*outcome and mortality rate

A. cattle
B. sheep
C. horses
D. swine
E. goats
F. poultry
G. dogs
H. cats
I. zoonotic diseases
J. other

VII. Parasites

A. common internal parasites
B. common external parasites
C. controlling parasites

VIII. Animal Husbandry Practices

A. handling and Restraining
B. castration
C. docking
D. dehorning
E. grooming
F. foot care

TEACHER ACTIVITIES:

1. Lecture and discussion.

2. Select and review reading references.

3. Arrange for field trips and guest speakers.

4. Arrange for animals and demonstrate techniques in handling, restraint, administration of medication, and husbandry techniques.

STUDENT ACTIVITIES:

1. Discussion and notes.

2. Reading assignments.

3. Field trips.

4. Prepare a vaccination schedule for each animal.

5. Complete a chart comparing information for each disease.
6. Practice skills in restraint, administration of medication, and management practices.

EVALUATION:

1. Student notebooks.
2. Quizzes and tests.
3. Classroom and laboratory participation.
4. Completed assignments.

BIBLIOGRAPHY:

1. Merck Veterinary Manual. Rahway, N.J.: Merck & Company, Inc., 1979.
2. Hoard's Dairyman Herd Health. Fort Atkinson, Wisconsin: W.D. Hoard & Son's Company, 1981.
3. Hog Disease Book, Ralston Purina Company, 1972.
4. Blakely, James & King, Dwight. The Brass Tacks of Animal Health. St. Louis, MO: Doane Agricultural Service, Inc., 1978.
5. Galloway, Joseph. Farm Animal Health and Disease Control. Philadelphia, PA: Lea & Febiger, 1974.
6. Merchant, Ival & Barner, Ralph. Infectious Diseases of Domestic Animals. Ames, Iowa: Iowa State University Press, 1978.

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1. Resources	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Animal Nutrition

LENGTH: Nine weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. develop a knowledge of the anatomy of animal digestive systems.
2. develop a knowledge of how digestive systems function.
3. understand principles of food digestion, nutrient absorption and metabolism.
4. develop a knowledge of the six food nutrients.
5. determine nutrient requirements of animals.
6. identify common feeds and feed stuffs.
7. determine nutritional value of common feedstuffs.
8. develop feeding programs for animals.
9. describe common computer applications in nutrition management.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Cattle Ranch Foreman	19:6 (m-n)
Beef Cattle Ranch and Farm Hand	24:3(g), 24:3(k)
Beef Feed Lot Foreman	34:2(c), 34:2(e)
Beef Assistant Cattle Ranch Foreman	37:2(e)
Dairy Farm Manager	51:9(a-g), 51:10(d-e), 52:11(a-k)
Horse Production Employee	61:2(a), 62:2(b-d)
Sheep Rancher	72:1(f), 73:3(a-o), 73:3(r)
Sheep Ranch Foreman	81:4(i), 82:6(a-c), 82:6(m), 82:6(4), 82:6(w)
Sheep Herder	94:4(g)
Lamb Feeder	98:1(a), 99:3(a-h), 99:3(o)
Feedlot Foreman	105:4(a-d), 105:4(h-i)
Swine Farmer	122:4(a-h), 123:4(i), 123:4(v)
Animal Technician	221:5(a-b)
Manager of Grain, Fertilizer, Feed, and Seed Sales Business	230:3(b)
Laboratory Animal Assistant	269:4(i)
Pet Shop Worker	274:4(g)
Kennel Worker	279:4(g)

CONTENT:

I. Compare types of digestive systems, development, anatomy, and physiology

   A. simple
   B. simple with enlarged colon
   C. simple with cecum
   D. ruminant
   E. gizzard

II. Digestion

   A. enzymatic
   B. enzymatic and bacterial
   C. bacterial and enzymatic
   D. physical

III. Absorption

   A. osmosis
   B. nutrient absorption into blood stream

IV. Metabolism

   A. nutrient conversion to energy
   B. nutrient storage
   C. waste elimination

V. Food nutrients

   A. water
   B. protein
   C. carbohydrates
   D. fats
   E. vitamins
   F. minerals

VI. Feedstuffs

   A. choosing feeds

      1. quality of feeds
      2. feed tag analysis

   B. concentrates and roughages
   C. nutritional value of feeds
   D. supplements
   E. additives
   F. production stimulants

VII. Developing feeding programs

   A. nutritional requirements
   B. choosing feeds
   C. nutritional value of feeds
   D. balancing rations
   E. recognizing nutritional deficiencies

VIII. Computer applications in nutrition management

   A. ration balancing programs
   B. transponder and computerized feeding systems

IX. Implementing feeding programs

   A. grouping animals according to nutritional needs
   B. equipment
   C. feeding time management
   D. labor efficiency

TEACHER ACTIVITIES:

1. Lecture sessions to explain digestive systems and their functions.
2. Develop or secure charts and models of digestive systems.
3. Secure examples of real digestive tracts.
4. Set up feeding demonstration with small animals or poultry.
5. Arrange field trips to demonstrate feeding programs and feed production.
6. Secure examples of feeding programs, feed tags, and feed stuffs.
7. Present computer applications to ration balancing and feeding programs.
8. Secure animal requirement and value charts.

STUDENT ACTIVITIES:

1. Maintain a notebook on lecture sessions.
2. Secure feed tags.
3. Balance hypothetical rations for various species.
4. Develop feeding program for at least one specie of animal (i.e., S.O.E.P. application).
5. S.O.E.P. applications of nutrition principles.

EVALUATION:

1. Review notebooks periodically.
2. Administer quizzes appropriate to areas covered.
3. Use field trip evaluation checklist.
4. Evaluate student laboratory project.
5. Score feeding program developed by students.
6. Administer post-test.

RESOURCES:

1. Model--NASCO, Madison, Wisconsin and other supply houses.
2. Feed Company--Service Specialist.
3. Feed Store.
4. University of Connecticut Extension Service Specialist.
5. Slaughter houses.

BIBLIOGRAPHY:

1. Cullison, A.E. Feeds and Feeding. Englewood Cliffs, NJ: Prentice-Hall Co., 1979.
2. Ensminger, E.M. Feeds and Nutritions. Danville: Interstate, 1979.
3. Fridline, C.R. Livestock Nutrition and Feeding. Ohio State University, 1979.
4. Gassard and Juergenson. Approved Practices in Feeds and Feeding. Danville: Interstate, 1971.
5. Jurgens, M.H. Animal Feeding and Nutrition. Kendall/Hunt Publishing Co., 1978.
6. Keith, T.B., and Baker, John P. Feed Formulation (manual). Danville: Interstate, 1976.
7. Peterson/Christensen/Nelson. Working in Animal Science. New York: McGraw-Hill, 1978.
8. Feed Additive Compendium

MEDIA:

1. Film "Remarkable Ruminants", University of Connecticut Media.

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1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Dairy Cattle Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. cite various aspects of the global and domestic dairy industry.
2. distinguish between breeds of dairy cattle and their characteristics.
3. select and judge dairy cattle.
4. outline events of management procedures in raising dairy cattle from birth to first lactation.
5. outline management of the dairy bull.
6. outline a successful breeding program for both young and mature dairy cattle.
7. outline management of a lactating dairy herd.
8. describe healthy dairy cattle and identify common diseases, causes, symptoms and cures.
9. describe milk secretion.
10. identify various milking systems and equipment and describe how they function.
11. identify efficient milking procedures.
12. compare various dairy record systems.
13. describe the composition of milk.
14. describe various methods of marketing milk and dairy products.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Dairy Farm Manager	49:1(a-e), 49:2(a-c), 50:2(d), 50:3(a-g), 50:4(a-h), 50:5(a-e), 50:6(a-f), 51:7 (a-d), 51:8(a-i), 51:9(a-g), 52:12(a-f), 52:13(a-b), 53:13(a-s), 54:17(a-g), 55:21(a-c), 56:21(d-l), 57:26(a-i)

CONTENT:

I. The dairy industry

- A. value of milk as a food
- B. global and U.S. dairy production
- C. cattle numbers and production statistics
- D. favorable and unfavorable factors impacting the dairy industry
- E. future of dairying

II. Breeds of dairy cattle
Characteristics, popularity and breed information for:

- A. major breeds
    1. Ayrshire
    2. Brown Swiss
    3. Guernsey
    4. Holstein
    5. Jersey
- B. dual purpose and minor breeds
    1. Milking Shorthorn
    2. Galloway
    3. Devon
    4. Illawarra
- C. purebred versus grade

III. Selecting and judging dairy cattle

- A. parts of the dairy animal
- B. ideal conformation
    1. calf
    2. heifer
    3. cow
    4. bull
- C. evaluation of pedigrees
- D. common faults
- E. selecting herd replacements
- F. fitting and showing dairy cattle
    1. grooming
    2. presenting

IV. Management of dairy cattle from birth to lactation

- A. first breath
- B. I.D.
- C. dip navel
- D. colostrum

- E. dehorning
- F. vaccinations
- G. feeding and nutrition
- H. housing
- I. grouping

V. Management of the dairy bull

- A. feeding
- B. housing
- C. general health and care

VI. Breeding dairy cattle

- A. reproductive performance
- B. A.I. services and procedures
- C. bull vs. A.I.
- D. estrous and heat detection
- E. gestation
- F. parturition
- G. post-parturition management
- H. feeding and nutrition
- I. breeding records

VII. Management of lactating dairy animals

- A. feeding and nutrition
- B. lactation management
- C. dry period management
- D. housing
- E. grouping

VIII. Health of the dairy herd

- A. signs of healthy animals
- B. cause, symptoms, treatment of common dairy illness and disorders
- C. prevention of illness
- D. health records

IX. Milk Secretion

- A. udder anatomy and physiology
- B. composition of milk
- C. milk secretion
- D. factors affecting milk quality
- E. milk let down
- F. mastitis

X. Milking Equipment

- A. basic parts of milking machines
- B. how milking machines work
- C. proper adjustment of machines
- D. maintenance of milking machines
- E. milker configurations

XI. Milking Procedures

   A. proper sequence of procedures
   B. timing and factors effecting timing
   C. grouping
   D. sanitation
   E. milk quality
   F. storage

XII. Dairy Records

   A. value of recordkeeping
   B. comparison of various record systems (i.e., DHIA, ELFAC, OS, WADAM, etc.)
   C. interpretation and application of records

XIII. Marketing milk and dairy products

   A. marketing
   B. milk handling and processing
   C. pricing and regulation
   D. various dairy products

TEACHER ACTIVITIES:

1. Class lecture.
2. Arrange for field trips to dairy farms.
3. Class lab and field demonstrations.
4. Guest speakers.
5. Distribute handouts on management.
6. Obtain audio visual equipment.

STUDENT ACTIVITIES:

1. Maintain notebook.
2. Develop information charts (i.e., breed, disease, parasites, etc.)
3. Participate in field trips.
4. Answer study questions and problems.
5. Developing breeding wheel.
6. Develop a dairy ration.

EVALUATION:

1. Review notebooks.
2. Quizzes.
3. Evaluate field trip reports.
4. Homework assignments.
5. Project grade.

RESOURCES:

1 Local dairy farmers.
2. Veterinarians.
3. DeLaval Milking Systems.
4. Milk Promotion Services, Inc., South Windsor, CT.
5. Current articles. The Hoard's Dairyman Magazine. Fort Atkinson, Wisconsin.

BIBLIOGRAPHY:

1. Campbell, J.R., Lasley, J.F. The Science of Animals that Serve Mankind. New York: McGraw-Hill, 1975.
2. Ensminger, M.E. Animal Science. Danville: Interstate, 1984.
3. Ensminger, M.E. Dairy Cattle Science. Danville: Interstate, 1980.
4. Etgen, W.M., Reaves, P.M. Dairy Cattle Feeding and Management. New York: John Wiley & Sons, 1978.
5. Quinn, Thomas. Dairy Farm Management. New York: Delmar, 1980.

INDIVIDUAL TEACHER UNIT REVIEW

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A. ADDITIONAL AND UPDATED TEACHING METHODS:

1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resources	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Poultry Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. identify the parts of a bird.
2. identify the general uses of poultry.
3. recognize general poultry terminology.
4. list the important classes and breeds of poultry.
5. understand breeding and development of poultry breeds and strains.
6. understand skills related to chick embryo development and hatching.
7. establish a complete understanding of poultry nutrition.
8. acquire skills in judging and evaluating live poultry, egg quality, and dressed quality.
9. be familiar with and know management skills related to the diseases and parasites of poultry.
10. understand marketing poultry and poultry products.
11. develop knowledge related to types of equipment and housing needs of modern poultry operations.
12. be aware of career opportunities in the poultry industry.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Broiler Grower	64:1(a-g), 64:3(a-d), 64:4(a-e), 65:5(a-d), 65:7(a-h), 65:11(a-b)
Egg Producer	66:2(a-f), 66:4(a-b), 66:5(a-e), 67:6(a-e), 67:7(a-e), 67:9(a-h), 67:10(a-e), 68:13(a-d)
Turkey Grower	69:2(a-h), 69:4(a-d), 70:5(a-e), 70:6(a-d), 70:8(a-h), 70:11(a-c), 71:12(a-c), 71:13(a-b)

Poultry Inspector 259:1(a), 259:2(a-i), 259:3(a-e), 260:4(a-d), 260:5(a-f), 260:6(a-k), 260:8(a-g)

CONTENT:

I. Introduction to Poultry Science

   A. importance and uses of poultry
   B. advantages of poultry production
   C. disadvantages of poultry production

II. Identification of poultry parts

III. Poultry terminology

IV. Breeds of poultry

   A. chicken classification

      1. class: designates a group of breeds that originated in a certain area or region.

         a. American--economically important
         b. Mediterranean--economically important
         c. English
         d. Asiatic

      2. breed: designates birds within a class that have the same body type and size.
      3. variety: designates birds within a breed that have distinctive color pattern or comb type.
      4. strain: designates a family of birds within a variety that has been bred by a certain breeder for several years.

   B. important bird breeds by class

      1. American

         a. Plymouth Rock
         b. Rhode Island Red
         c. New Hampshire

      2. Mediterranean

         a. Leghorn
         b. Minorca

      3. English

         a. Cornish
         b. Ausralorp

4. Asiatic

   a. Brahma
   b. Cochin

V. Selection Methods

   A. types

      1. egg producers
      2. meat producers
      3. specialty birds

   B. pedigree selection including an understanding of inheritable traits
   C. relation of selection and the culling process
   D. pigmentation and molting

VI. Formation of the Egg

   A. the physiology of egg formation and production
   B. the composition of the egg including shape, size, color, yolk, white, and shell

VII. Incubation

   A. selecting eggs for hatching
   B. care of hatching eggs
   C. development of the chick
   D. optimum conditions for incubation: effects of temperature, position of the eggs, oxygen requirements, moisture requirements

VIII. Brooding and rearing

   A. brooding requirements
   B. capon production

IX. Nutrient Requirements

   A. nutrient classification
   B. requirements for maintenance
   C. requirements for growth
   D. requirements for egg production
   E. ration components

X. Judging and evaluating poultry and poultry products

   A. selecting production hens and pullets
   B. selecting dressed birds on current USDA standards
   C. determining the interior and exterior quality of eggs
   D. understand how poultry products are processed, marketed and evaluated
   E. identification of various poultry parts being marketed in the poultry industry including different methods of cutting individual parts

XI. Health management

- A. nature of disease
- B. prevention of disease
- C. procedures for disease outbreaks
- D. disease of young chickens: pullorum, bronchitis, coccidiosis, etc.
- E. common diseases of hens
- F. poultry parasites

XII. Marketing eggs and dressed poultry

- A. egg quality and control
- B. geographic considerations
- C. market classes and grades of poultry
- D. cutting, handling, and wrapping processed poultry

XIII. Housing and equipment

- A. types of poultry housing

  1. loose
  2. cage

- B. poultry house equipment

  1. waterers
  2. nest boxes (laying cages)
  3. bedding
  4. feeders
  5. lighting
  6. ventilation
  7. insulation

XIV. Career opportunities in the poultry industry

TEACHER ACTIVITIES:

1. Classroom discussions and lectures.

2. Arrange laboratory demonstrations for hatching, raising chicks, nutrition, caponizing, candling, dressing, butchering and judging.

3. Field trips for viewing housing and equipment.

4. Field trip for judging.

5. Discussion of chickens and breeds using live birds or pictures depicting classes and breeds.

6. Provide a layer and non-layer and discuss differences.
7. Make a word list of commonly used terms in the poultry industry.
8. Have the class make a list of possible jobs within the industry.
9. Select some of the job titles the students have thought of, and list the types of skills these jobs would require.
10. Use transparencies for describing and labeling the parts of the bird and egg.
11. Prepare worksheets, Bingo games, Jeopardy games, word searches, and crosswords for students to review.
12. Use media materials whenever possible.
13. Arrange for guest speakers.
14. Assist students to generate own marketing strategies for poultry products.

STUDENT ACTIVITIES:

1. Keep a notebook of handout materials and class notes.
2. Develop a scrapbook of identified breeds of poultry.
3. Involve oneself in the review games, laboratory exercises and class work.
4. Discuss related SOEP activities.
5. Secure feed tags and other related materials.
6. Develop a poultry operation from start to finish.
7. Construct a bulletin board on the poultry industry.
8. Hatch out and raise laying hens at the school and sell the eggs.

EVALUATION:

1. Review through periodic quizzes.
2. Worksheets for each student.
3. Judging an other laboratory exercises.
4. Students SOEP's where applicable.

5. Review notebooks.

6. Unit tests.

RESOURCES:

1. Breed association publications.
2. Business publications.
3. Local farms and students' SOEPs.
4. Animal shows and fairs.
5. County Extension Service.
6. University of Connecticut Cooperative Extension publications, No's. 81-1, 80-185, 81-2.
7. USDA Publication No. 2262.
8. Poultry magazines.
9. Local poultrymen.
10. Hatcheries.
    A. Arbor Acres
    B. Hall Brothers
11. National Poultry Institute.
12. Feed Companies.

BIBLIOGRAPHY:

1. Cartwright, B.W. Know Your Ducks and Geese. Hearst Corp., 1980.
2. Cobb Broiler Manual. Concord: Cobb, 1984.
3. Cobb Female Breeders Management Guide. Concord: Cobb.
4. Harper, Mavis and Monty. Raising Game Birds. Charlotte, VT: Garden Way, 1984.
5. Florea, J.H. ABC of Poultry Raising. New York: Dover, 1977.
6. Jurgens, Marshall H. Animal Feeding and Nutrition. Iowa: Kendall/Hunt Publishing Company, 1980.

7. Loyl Stromberg. *Sexing All Fowl, Baby Chicks, Game Birds, Cage Birds*. Minnesota: Stromberg Publishing Company, 1977.

8. Mecia, Leonard S. *Raising Your Own Turkeys*. Charlotte, VT: Garden Way, 1982.

9. Nesheim, Malden et al. *Poultry Production*. Philadelphia: Lea and Febiger, 1979.

10. Sheid, Dan W. *Raising Game Birds*. Fort Atkinson: Highsmith Co., 1970.

11. Vivian, John M. *Raising Ducks and Geese*. Charlotte, VT: Garden Way, 1977.

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2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Beef Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. identify careers in the beef industry.
2. identify 8 breeds of beef.
3. define terms associated with beef.
4. identify the types of beef production.
5. describe selection practices for beef.
6. describe proper management practices for all phases of the beef business.
7. identify the parts and functions of the reproductive system.
8. describe the reproductive process including estrus, ovulation, fertilization, gestation, and parturition.
9. describe breeding systems commonly used in beef production.
10. identify the digestive systems of the bovine.
11. determine feeding requirements of beef.
12. balance a ration for a class of beef cattle.
13. identify the causes of infectious and non-infectious disease.
14. identify the common internal and external parasites of beef.
15. describe the cause, symptoms, prevention, and treatment of common diseases of beef.
16. identify components of well planned beef housing and related facilities.
17. explain beef cattle marketing channels and programs for promoting beef consumption.
18. fit and show beef animals.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Cattle Ranch Foreman	17:1(a-j), 18:2(k-l), 18:4(a), 18:5(a-c), 18:6(a-b), 19:6(d, m, r, s)
Beef Assistant Cattle Ranch Foreman	20:2(a-j), 21:4(a), 21:5(a-d), 21:6(a), 22:6(h, i, p)
Beef Cattle Ranch and Farm Hand	23:1(a-u), 24:1(jj), 25:3(a-k), 25:4(b-d)
Beef Cowpuncher	26:1(a-x), 27:3(a-i)
Beef Ranch Laborer	28:1(a-g)
Beef Artificial Inseminator	30:1(a-f)
Beef Veterinary Assistant	21:1(a, b, h, j, k, n, o), 33:3(a-e), 33:4(a)
Beef Feed Lot Foreman	34:2(a-i), 35:4(a-b), 35:5(a-b), 35:6(a), 36:6(f, i, l, q)
Beef Assistant Feed Lot Foreman	37:2(a-j), 38:4(a-c), 38:5(a-f), 38:6(a, e), 39:6(l, n)
Beef Cattle Buyer	40:1(a-o), 40:2(a-d), 41:2(e, f), 41:3(a-e)
Beef Feed Lot Laborer	42:1(a-h)
Beef Feed Lot Hand	45:1(a-u), 46:2(a-h), 46:3(a-h), 46:4(a)

CONTENT:

I. Careers in beef industry

  A. production
  B. marketing
  C. processing
  D. transportation
  E. health
  F. education

II. Beef breeds

  A. breed traits
  B. beef breed identification

III. Types of beef production

  A. commercial

    1. cow-calf
    2. stocker
    3. finishing
    4. baby beef
    5. fat-calf

  B. purebred

IV. Beef selection

  A. pedigree
  B. production testing

    1. individual

      a. 205 day adjusted weaning weight
      b. average daily gain
      c. 365 day yearling weight
      d. ratio

    2. progeny

      a. number of progeny
      b. same as above

    3. showing winnings
    4. conformation
    5. heritability

V. Beef management

  A. breeding herd

    1. growing replacement heifers

      a. feeding
      b. selection

    2. breeding heifers

      a. weight
      b. age to breed
      c. when to breed

    3. cow herd during breeding season

      a. bull to cow ratio
      b. cow condition
      c. duration
      d. pregnancy diagnosis

    4. bulls

      a. growing
      b. feeding
      c. breeding soundness exam

5. artificial insemination
    a. heat detection
    b. insemination
    c. semen storage and handling
    d. records
    e. advantages and disadvantages

6. calving season
    a. duration
    b. practices
    c. records

B. calf management

1. growth promoters
    a. implants
    b. feed additives
    c. procedures

2. castration
    a. purpose
    b. methods
    c. time to castrate

3. dehorning
    a. purpose
    b. methods
    c. time to dehorn

4. branding and marking
    a. purpose
    b. methods

5. managing weaned calves
    a. weaning age
    b. marketing

6. vaccinations
    a. methods
    b. types
    c. time to vaccinate

VI. Feeding

- A. digestive systems
- B. common feedstuffs
- C. nutritive requirements
- D. beef rations

VII. Breeding

- A. reproductive tracts
- B. methods of breeding

    1. pasture
    2. pen
    3. hand
    4. artificial insemination

- C. Estrus synchronization

    1. purpose
    2. methods
    3. advantages and disadvantages

- D. embryo transfer

    1. purpose
    2. methods
    3. advantages and disadvantages

- E. gestation
- F. parturition
- G. breeding systems

    1. inbreeding
    2. linebreeding
    3. outcrossing
    4. crossbreeding

VIII. Disease and health

- A. disease agents
- B. causes of disease
- C. common beef diseases

    1. bovine virus diarrhea
    2. brucellosis
    3. calf enteritis
    4. foot rot
    5. leptospirosis
    6. shipping fever

D. external parasites

    1. flies
    2. ticks
    3. mites

E. internal parasites

    1. roundworms
    2. flatworms
    3. coccidia
    4. anaplasma

F. herd health program

IX. Beef housing and facilities

A. housing

    1. type of production
    2. climate
    3. cost
    4. size of operation

B. facilities

    1. feedlot
    2. corral layout
    3. lead ups
    4. chutes/scales
    5. loading chutes

X. Marketing

A. marketing channels

    1. consignments
    2. direct sales
    3. cooperative sales
    4. futures markets

B. beef cattle cycles

    1. defined
    2. how to use

C. grading

    1. yield grading
    2. quality grading

D. market information

  1. USDA reports
  2. land grant colleges
  3. extension service
  4. trade publications/producer organizations
  5. electronic data services

E. marketing costs

  1. freight
  2. commission
  3. yardage
  4. insurance
  5. Federal transportation tax--3%
  6. feed
  7. check off (beef promotion fund)

XI. Fitting and showing beef cattle

  A. training
  B. fitting

    1. washing
    2. clipping
    3. grooming

  C. showing

TEACHER ACTIVITIES

1. Lecture.

2. Class and lab demonstration.

3. Arrange field trips.

4. Arrange for guest speakers.

STUDENT ACTIVITIES:

1. Keep class notebook.

2. Prepare reports.

3. Participate in field trips.

EVALUATION:

1. Quizzes.
2. Report grades.
3. Notebook grade.
4. Unit exam.

RESOURCES:

1. Pamphlets available from Vocational Instruction Service, Texas A & M University:

   A. Selecting Beef Cattle
   B. Beef Cattle Breeds
   C. Carcass Judging and Grading
   D. Animal Judging and Grading
   E. Dehorning Procedures
   F. injection Procedures
   G. Handling and Restraint of Livestock
   H. Animal Anatomy
   I. Feed Nutrients and Classes of Feed
   J. Digestion and Absorption
   K. Rations
   L. Bacterial, Viral, Fungal and Nutritional Diseases
   M. Internal Parasites
   N. External Parasites

BIBLIOGRAPHY:

1. Bailey, J. Veterinary Handbook for Cattlemen. New York: Springer Co., 1958.

2. Gillespie, J.R. Modern Livestock and Poultry Production. Albany, NY: Delmar, 1981.

3. Merck Veterinary Manual. Rathway, NJ: Merck Company, 1979.

4. Morrison, F.B. Feeds and Feeding. Illinois: Morrison Publishing Co., 1961.

5. Seiden, R. Livestock Health Encyclopedia. New York: Springer Publishing Co., 1968.

6. Newmann, A.L. Beef Cattle. New York; John Wiley and Sons, 1977.

7. TV Vet Guide for Farming Stock. Farming Press L & D, 1984.

MEDIA:

1. Slides:
    a. Ruminant Stomach HOBAR (script)
    b. Beef Breeds HOBAR
    c. Beef Cattle Body Types, Voc. Ed. Prod., Cal. Poly.
    d. Cattle Handling Facilities, Voc. Ag. Service, Urbana, Ill. (script)
    e. Livestock Judging Slide Sets, Voc. Instructional Service, Texas A & M
    f. Grooming Techniques for Steer Exhibition, HOBAR
    g. Beef Cattle Evaluation, University of Florida (tape)
    h. Freeze Branding, IMS, Cornell
    i. Pregnancy Diagnosis in Cattle, Voc. Instructional Service, Texas A & M
    j. Feeds Commonly Used by Dairymen, IMS, Cornell
    k. Animal Drugs: Their Use and You, Animal Health Institute
    l. Vaccine Methods, NASCO

2. Filmstrips:
    a. Artificial Insemination of Beef and Dairy Cattle, VEP, Cal. Poly. (tape)
    b. Beef Management Series, VEP, Cal. Poly. (tapes and scripts)
        1. Nutrition
        2. Dehorning
        3. Handling and Equipment
        4. Calving Management
        5. Preventative Health Care
        6. Castration
    c. Livestock Diseases and Parasites, Iowa State University.
    d. Embryo Transfer in Beef and Dairy Cattle, VEP, Cal. Poly.

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1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Sheep Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12, January-March

OBJECTIVES: The students will be able to:

1. be familiar with the sheep industry.
2. identify the major breeds of sheep.
3. select sheep.
4. describe proper feeding of sheep for various ages and uses.
5. describe the reproductive process and proper breeding management.
6. demonstrate routine management practices.
7. identify diseases and parasites affective sheep, and know their prevention and cure/control.
8. lamb out ewes and care for a newborn lamb.
9. be familiar with various kinds of records.
10. fit and show sheep.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Sheep Rancher	72;1(a-f), 73:3(a-y), 73:4(a), 74:6(a-bb), 85:6(cc-hh), 75:7(a-n), 75:8(a-f), 76:8(g-m), 76:9(a-d), 78:16(a-o)
Sheep Ranch Foreman	80:1(a-i), 81:4(a-i), 81:5(a-g), 82:6(a-x), 83:7(g-h), 83:9(a-g), 83:10(a-e), 83:11(a-f), 84:11(g-ff)
Sheep Ranch Hand	88:2(a-h), 89:3(a-r), 90:8(a-y), 92:12(a-e)
Sheep Herder	93:4(a-b), 94:4(c-i), 94:5(a-o), 94:6(a-g), 94:7(a-m), 95:7(n-s), 95:9(a-e)
Lamb Feeder	98:1(a-e), 98:2(a), 99:3(a-h), 99:5(a-e), 100:5(a-b), 100:6(b-cc), 101:9(a-e)
Feedlot Foreman	105:3(a-bb), 105:4(b-i), 106:5(b-f)
Feedlot Laborer	110:3(a-k), 110:5(a-o), 111:5(p-r)

CONTENT:

- I. Sheep Industry
  - A. types of operations
    - 1. feeder
    - 2. purebred
    - 3. market lambs
    - 4. commercial
    - 5. hothouse
  - B. range of industry
    - 1. locations of markets
    - 2. consumption of sheep products
    - 3. size of industry in Connecticut
    - 4. size of industry in United States
- II. Sheep breeds
  - A. breed traits
  - B. breed identification
  - C. popularity of the various breeds
- III. Sheep selection
  - A. parts of sheep
  - B. breed terminology
  - C. type and conformation
  - D. production records
  - E. purebred vs. crossbred
  - F. show ring trends
- IV. Feeding sheep
  - A. digestive systems
  - B. nutrient requirements for various ages and uses
  - C. common feeds
  - D. feed additives, implants
  - E. rations for:
    - 1. market lambs
    - 2. flushing
    - 3. lactating ewes
    - 4. gestation
    - 5. rams in breeding season
    - 6. growing out yearlings
    - 7. show sheep
  - F. feeding systems
    - 1. free choice
    - 2. limited feed

G. economics related to feeding sheep

1. least cost ration
2. fastest gain rations

V. Breeding

A. heat cycles and breeding season
B. management of ewes/rams
C. use of teaser lambs
D. gestation
E. care during gestation
F. methods of estrus synchronization
G. parturition
H. care of newborn lamb
I. lambing systems
J. breeding systems

VI. Management practices

A. castration
B. docking
C. tagging
D. crotching out
E. facing
F. shearing
G. restraints
H. vaccinations

1. entero.
2. E. coli
3. tetanus
4. vibrio
5. foot rot

I. hoof trimming
J. weaning
K. eartagging/tattoos

VII. Health problems

A. common diseases

1. tetanus
2. vibriosis
3. white muscle disease
4. scours
5. urinary calculi
6. spide syndrome

B. parasites

1. internal
2. external
3. methods of treatment

C. preventive health programs

VIII. Housing

A. types of systems

1. pasture
2. sheds
3. confinement

B. lambing pens
C. feeding equipment
D. fencing
E. water systems
F. equipment

1. scales
2. creeps
3. trimming stands
4. chutes
5. turn tables

IX. Marketing

A. price trends
B. market weights
C. types of marketing promotional techniques
D. wool markets and pricing
E. crafts and pelts market
F. outlook for future

X. Fitting and showing

A. growing
B. training; halter breaking
C. fitting; cutting out; differences among breeds

TEACHER ACTIVITIES:

1. Plan at least two laboratory work periods per week.

2. Plan to house at least two sheep at the Vocational Agriculture facility for the duration of this unit.

3. Plan at least two field trips to sheep enterprises to discuss management practices.

STUDENT ACTIVITIES:

1. Maintain a notebook.
2. Answer study questions relating to each problem area.
3. Participate in all laboratories.

EVALUATION:

1. Review notebooks periodically.
2. Evaluate student learning with quizzes.
3. Have student demonstrate management techniques.
4. Evaluate student performance in laboratories.
5. Check results at end of unit with a post-test.

RESOURCES:

1. Local extension office.
2. Connecticut Sheep Breeders Association (contact Dr. L.A. Malkus, U-Box 40, UCONN, Storrs, CT (486-2636).
3. Sheep producers (list of producers in Connecticut available from Conn. Sheep Breeders Assoc.)
4. List of materials:
    - A. two sheep (lambs or ewes)
    - B. scale for weighing
    - C. feed and bedding
    - D. buckets
    - E. shears - electric and hand
    - F. cards and other show equipment (contact a sheep breeder in your area to help you out here)
    - G. needs and syringes for demonstration (work with veterinarian in area)
    - H. feed samples
    - I. registration papers
    - J. flock record cards
    - K. Drover's Journal or similar market type publication
5. SID (Sheep Industry Development) Notebook. Ames: Iowa State University Publication.

BIBLIOGRAPHY:

1. Beeson, W.M. Livestock Judging and Evaluation. Danville: Nebraska Publishers, Inc., 1970.
2. Ensminger, M.E. Animal Science, 8th Edition. Danville: Interstate, 1984.
3. Ensminger, M.E. Sheep and Wool Science. Danville: Interstate.
4. Scott, George. The Sheepman's Production Handbook. Denver: Abegg Printing, 1984.
5. Simmons, Paula. Raising Sheep the Modern Way. Charlotte, VT: Garden Way, 1976.

INDIVIDUAL TEACHER UNIT REVIEW

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B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resources Address Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Swine Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. identify major breeds of hogs and their characteristics.
2. evaluate and select breeding stock and market hogs.
3. discuss differences between market hogs and breeding stock.
4. discuss housing facilities, feed programs, and breeding programs for breeding stock, feeder pigs and market hogs.
5. perform routine management practices: shots, castrations, needle teeth.
6. identify diseases and parasites effecting hogs.
7. discuss prevention, cure and control of health problems.
8. prepare and demonstrate uses of a recordkeeping system.
9. describe advantages and disadvantages of crossbreds vs. purebreds.
10. understand production cycles as related to marketing.
11. describe marketing procedures.
12. fit and show a hog.
13. care for a litter.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Swine Farmer	120:1(a-o), 121:1(p-q), 121:2(a-o), 122:2(p-r), 122:3(k), 122:4(a-h), 123:5(a), 124:5(b-m)

CONTENT:

I. Hog industry

    A. types of operations

        1. feeder pigs
        2. purebred

    3. farrow to finish
    4. market hogs

  B. Range of industry

    1. consumption of hog products
    2. rank of pork producers compare to beef and sheep
    3. pork industry in Connecticut
    4. pork industry in United States

II. Hog selection

  A. parts of the hog

    1. external structure
    2. male/female

  B. breed terminology
  C. breeds of hogs - characteristics
  D. type and conformation
  E. live evaluation
  F. production records
  G. trends
  H. purebred vs. crossbred

III. Feeding and nutrition

  A. anatomy of digestive system
  B. nutritional requirements
  C. common hog rations

    1. feeder pigs
    2. gestation
    3. lactating sows
    4. market hogs

  D. feed systems
  E. alternative feeds

    1. garbage
    2. dairy products

IV. Breeding

  A. anatomy of reproductive organs

    1. identification
    2. function

  B. Estrus Cycle

    1. hormones

- C. heat detection
    - 1. length of estrus
    - 2. signs
- D. breeding programs
- E. management of sows and boars
- F. care of sow during gestation
- G. parturition
    - 1. farrowing system

V. Management practices

- A. castration
- B. clipping needle teeth
- C. iron shots
- D. weaning
- E. management of litter
- F. restraints
- G. blood testing
- H. vaccinations
- I. sanitation

VI. Health problems

- A. common diseases
    - 1. cholera
    - 2. brucellosis
- B. internal parasites
- C. external parasites
- D. preventative health programs

VII. Housing

- A. types of pens
    - 1. raised pens
    - 2. ground-solid floors
    - 3. slatted floors
- B. types of systems
    - 1. confinement
    - 2. pasture
    - 3. spacing requirement

- C. equipment
    - 1. farrowing pens
    - 2. fencing
    - 3. creeps
    - 4. feeding equipment
- D. climate control
    - 1. temperature
    - 2. humidity
    - 3. ventilation

VIII. Marketing

- A. marketing price trends
- B. market weight
- C. types of markets
- D. grades of pork
- E. evaluating live hogs
- F. future outlook

IX. Fitting and showing

- A. training
- B. grooming
- C. showing

TEACHER ACTIVITIES:

1. Class lectures.

2. Class and lab demonstration of skills.

3. Field trips ot hog operations, breeding farm, finishing-market hog operation, feeder hogs.

4. Videos, film strips and slides
    - A. housing
    - B. breeding
    - C. farrowing
    - D. conformation slides
    - E. breed characteristics

5. Live animals in school
    - A. raise market hogs
    - B. farrow out a litter

6. Guest speakers from field.

7. Handouts and worksheets on:
    - A. breeding programs
    - B. housing
    - C. management practices
    - D. ear notching
    - E. breed characteristics

8. Computer programs
    - A. anatomy ID
    - B. self-quiz

STUDENT ACTIVITIES:

1. Notebook.

2. Develop a hog farm operation.

3. Laboratory participation
    - A. clip needle teeth
    - B. administer shots-iron and vaccination
    - C. castrate
    - D. judging and evaluation
    - E. build pens, housing, farrowing crate

4. Notes from field trips
    - A. outlay of farm
    - B. management practices

5. Complete handouts and study questions

6. Computer programs
    - A. external anatomy of hog
    - B. internal anatomy
    - C. reproductive tracts
    - D. self-quiz

EVALUATION:

1. Notebook grade.

2. Quiz and test grades.

3. Work sheets.

4. Field trip reports.

5. Lab participation.

RESOURCES:

1. Local hog farms.
2. Breed journals.
3. Cooperation Extension publications.

BIBLIOGRAPHY:

1. Bundy, C.E., Diggins, R.V., Christensen, V.W. Swine Production. Englewood Cliffs, NJ: Prentice Hall, 1976.
2. Ensminger, M.E. Stockman's Handbook. Danville: Interstate, 1983.
3. Kamstra, Leslie D. Nutrition of Farm Animals. Debuque: Kendall-Hunt Publishing, 1975.
4. New York Pork Industry Handbook, IMS, Cornell.
5. Swine Management Handbook. IMS, Cornell.
6. Thornton, Keith. Practical Pig Production. Ipwsich: Farming Press Lmited, 1978.
7. Van Loon, Dirk. Small-Scale Pig Raising. Charlotte, Vermont: Garden Way, 1978.

MEDIA:

1. VEP slides and film strips.
2. Computer programs-Agri-ID, Swine, Agri-quiz.
3. Videos, Creative Educational Video, Inc.
    A. Swine reproduction, breeding and farrowing series 1 & 2
    B. Swine management practices series 1 & 2
4. AG-ED MEDIA TRENDS, SWINE PACKAGE; Instructional unit, Student Guide and activities.

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ANIMAL SCIENCE CURRICULUM

UNIT: Horse Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. use proper horse related vocabulary.
2. identify horse breeds.
3. identify parts of a horse.
4. be aware of necessary safety precautions important around horses.
5. identify common horse diseases, their prevention and cures.
6. identify common blemishes and unsoundnesses, their prevention and treatment.
7. understand proper management procedures used in horse production, feeding, housing, hoof care, and preventative health care.
8. understand the different uses for horses and the types suitable for these uses.
9. compare horses to an accepted standard according to their use.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Horse Production Employee	61:1(a-d), 61:2(a), 62:2(b-d), 62:4(a-d), 62:6(a-b), 62:7(a-e)

CONTENT:

I. General overview of the following areas:

- A. origin and development of the horse
- B. horse breeds commonly found in the United States and Canada, including popular European imports
- C. horse populations--industry status

II. Specific instruction in the following areas:

- A. proper vocabulary of horse related terms
- B. parts and anatomy of the horse
- C. measuring size and distinguishing between pony, light horse and draft horse.
- D. horse colors and markings

III. Safety precautions that must be observed around horses and horse barns

  A. proper attire
  B. catching, leading and tying techniques
  C. proper handling techniques
  D. proper ways of dealing with horses that have dangerous vices
  E. fire safety and prevention

IV. Identify common horses diseases, their prevention and treatments

  A. heaves
  B. strangles
  C. colds and influenza
  D. colic
  E. tetanus
  F. Equine encepholomyelitis (eastern, western, Venezualean)
  G. Equine infectious anemia
  H. tying up syndrome
  I. rhynopneumonitis
  J. Equine distemper
  K. periodic opthalmia
  L. thrush
  M. rabies
  N. contagial and equine metritis
  O. skin problems

V. Identify common blemishes, their causes, treatments and prevention

  A. wounds and inflammations
  B. hoof cracks
  C. bog spavins
  D. thoroughpin
  E. scratches
  F. windpuffs
  G. capped hocks and elbows
  H. osselets

VI. Identify common unsoundnesses, their causes, treatments and prevention

  A. splints
  B. ringbone
  C. sidebone
  D. founder
  E. bowed tendon
  F. bone spavin
  G. navicular disease
  H. contracted heels

VII. Understanding proper management practices for horses

- A. internal parasites and their control
- B. external parasites and their control
- C. equine feeds and feed additives
- D. housing, bedding and manure handling
- E. turn out and exercise
- F. vaccination, deworming and toothcare schedules
- G. equine first aid
- H. proper hoof care
- I. breeding methods, heat detection, stallion and mare care, parturition and foal care

VIII. Understanding different horse types, their respective uses and riding styles associated with them

- A. Western horses
  1. pleasure and trail
  2. roping, reining, barrel racing
  3. equitation
  4. cattle work
- B. English horses
  1. racing
  2. hunter/jumper
  3. equitation
  4. pleasure
  5. dressage
  6. combined training
  7. fox hunting/hunterpacing
- C. Saddlehorses
  1. 3 gaited
  2. 5 gaited
  3. pleasure
  4. driving
  5. equitation
- D. Driving horses
  1. harness racing
  2. roadster
  3. pleasure
  4. combined training
- E. Draft horses
  1. logging andpulling
  2. driving
  3. farm work

IX. Selection and judging according to 4-H and FFA score cards

A. general appearance
B. head and neck
C. forequarters
D. body
E. hindquarters
F. legs
G. way of going

TEACHER ACTIVITIES:

1. Classroom lectures and discussions.
2. Field trips for demonstrations.
3. Field trips for practice judging.
4. Field trips for management demonstrations.
5. Films, slides, movies.

STUDENT ACTIVITIES:

1. Classroom discussion based on pupil experience.
2. Compiling notes of class discussions and field trips.
3. Practice judging horses.
4. Practice proper management on students' SOEP.

EVALUATION:

1. Weekly quizzes.
2. Evluation of student conduct around horses during field trips.
3. Final unit exam.
4. Practice judging contests.
5. Grading of notebooks.

RESOURCES:

1. Area blacksmith.
2. Area veterinarian.
3. Area horse owners and barn managers.
4. Student horse projects.

BIBLIOGRAPHY:

1. Evans, Barton, Hintz, Van Vleck. The Horse. New York: W.H. Freeman, 1977.
2. Stoneridge, M.A. Practical Horseman's Book of Horsekeeping. New York: Doubleday, 1983.
3. Jacobson, P., Hayes, M. A Horse Around the House. New York: Crown, 1972.
4. Spalding, J. The Family Horse. How to Choose, Care For, Train, and Work Your Horse. Washington: Cloudburst Press.
5. Straiton, E.C. The Horseowners Vet Book. New York: J.B. Lippincott, 1973.

MEDIA:

1. Slides available from IMS, Cornell, 24 Roberts Hall, Ithaca, NY 14853-5901.
    A. Breeds of Light Horses

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ANIMAL SCIENCE CURRICULUM

UNIT: Goat Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. identify the uses and benefits of capriculture.
2. identify the major breeds of goats.
3. select a goat for production purposes.
4. identify opportunities available in the goat industry.
5. properly house and manage a goat enterprise.
6. properly feed a goat herd.
7. properly recognize and care for a goat's basic health requirements.
8. outline a successful breeding program to maintain both milk production and herd replacement.
9. select and utilize proper milking systems.
10. identify and make dairy goat products.

CONTENT:

I. The Goat Industry

   A. range and scope

      1. role in meeting world food supplies
      2. all about goats: distribution and brief introduction of goats
      3. the United States dairy industry

   B. opportunities for full and part time enterprises
   C. economics of dairy goats

      1. value of products

         a. milk
         b. meat (kid and chevon)
         c. fiber

II. Goat selection

- A. parts of the goat
- B. breed terminology
- C. breed characteristics
  - 1. Alpine
  - 2. Angora
  - 3. LaMancha
  - 4. Nubian
  - 5. Oberhasli
  - 6. Pygmy
  - 7. Saanen
  - 8. Toggenburg
- D. proper type and conformation
  - 1. for milking
  - 2. for meat
  - 3. for fiber
  - 4. the buck
- E. production

III. Housing management

- A. types of housing
  - 1. loose housing
  - 2. confinement housing
  - 3. hutches
- B. ventilation and insulation
- C. pen construction
- D. hay racks
- E. water supplies
- F. bedding
- G. exercise yards
- H. fencing
  - 1. predator control

IV. Feeding goats

- A. the goats digestive system
- B. nutrient requirements and feed values
- C. feed choices
  - 1. pastures
  - 2. dry forages
  - 3. silages, haylages, and root crops
  - 4. concentrates
  - 5. feeding additives

- D. determining feed quality
- E. feeding kids
- F. feeding yearlings
- G. feeding milking does
- H. feeding bucks

V. Breeding and reproduction

- A. breeding season
- B. natural breeding or artificial insemination
- C. estrus synchronization
- D. gestation length
- E. care during gestation
- F. pregnancy examinations
- G. parturition
- H. reproductive health
- I. selection and breeding programs
- J. the genetics of milk and type
- K. genetic evaluation
- Lm care of the breeding buck

VI. Raising kids

- A. care at birth
- B. management techniques
  - 1. disbudding
  - 2. deodorizing (descenting)
  - 3. wattles and extra teats
  - 4. identification
    - a. tattooing
    - b. ear tagging
    - c. neck chains
  - 5. castration
- C. feeding until weaning
- D. feeding after weaning
- E. housing
- F. equipment

VII. Management techniques

- A. castration
- B. horn disbudding
- C. identification procedures
- D. hoof trimming
- E. teeth care
- F. deworming
- G. grooming

VIII. Proper health care

- A. internal parasites
- B. external parasites
- C. disease
- D. poisoning (plant and chemical)
- E. methods of administering medications
- F. vaccination programs
- G. first aid
- H. disease control management
    - 1. sanitation

IX. Milk production

- A. milking equipment and stands
- B. milk house construction, equipment and sanitation
- C. proper milk handling
- D. machine milking vs. kids nursing
- E. proper milk handling
- F. producing quality goat milk
- G. marketing
    - 1. goat milk vs. cow milk
    - 2. dairy-goat milk products
    - 3. rules and regulations governing the production of dairy goat milk
    - 4. support: Government, Co-ops, etc.

X. Chevon production

- A. nutrition
- B. health
- C. reproduction
- D. management
- E. predators
- F. genetics
- G. meat cuts
- H. meat markets

XI. Angora production

- A. type of production
- B. range management
- C. breeding practices
- D. supplemental feeding
- E. shearing
- F. spraying-parasite control
- G. defect control
- H. marketing and records

XII. Recordkeeping

- A. dairy goat industry symbols and abbreviations
- B. production testing
- C. health records
- D. breeding records
- E. management procedures
- F. computer utilization

XIII. Fitting and showing

- A. why show?
- B. getting ready to show
- C. fitting
- D. what to take to the show
- E. feed and bedding
- F. what to do at the show
- H. showing

TEACHER ACTIVITIES:

1. Class lecture.

2. Class and lab demonstrations of management skills.

3. Field trips:

   A. large operation

      1. milk production
      2. product manufacturing

   B. small scale operation

      1. student's SOEP
      2. local farm

4. Guest speakers:

   - A. local goat producer
   - B. veterinarian relating to health problems
   - C. local product manufacturer and/or distributor

5. Class discussion.

6. Tate test between different types of cows' milk and goats' milk.

7. Panel discussion on the value of raising goats.

   - A. student panel
   - B. professional panel

8. Design and build in class:

   A. milking stand for goats
   B. kid restraining box

9. Design in class:

   A. housing set up for a small herd of goats
   B. small scale automatic milking operation

10. Use audio-visual aids.

STUDENT ACTIVITIES:

1. Maintain a notebook, including class notes and hand-outs.

2. Develop a checklist of management practices.

3. Using a computer:

   A. develop feeding programs for groups of goats.
   B. develop breeding programs and schedules for goats.

EVALUATION:

1. Quizzes.

2. Test.

3. Performance.

4. Notebook review.

5. Computer programs.

RESOURCES:

1. Extension Services.

2. Local goat farms.

3. Specialty product stores.

4. State University staff and facilities.

5. Cheesemakers.

6. Caprine Supply, P.O. Box 4, 33001 West 83rd Street, DeSoto, Kansas 60018.

7. Dairy Goats: Breeding, Feeding, Management, Cooperative Extension, College of Agriculture, University of Mass., Publ. #439, (available through Cooperative Extension College of Ag., Univ. of Conn.).

8. Dairy Goat Journal, P.O. Box 1808, Scottsdale, AZ 85252, Publication 12 times per year.

9. The Extension Goat Handbook, printed and distributed in cooperation with the Extension Service, USDA, Washington, DC. (available through Cooperative Extension College of Ag., Univ. of Conn.) March 1984.

10. United Caprine News, Rotan, Texas 79546.

BIBLIOGRAPHY:

1. Belanger, Jerry. Raising Goats the Modern Way. Charlotte, VT: Garden Way, 1981.

2. Carroll, Ricki and Robert. Cheesemaking Made Easy. Scottsdale, AZ: Dairy Goat Journal.

3. Owen, Nancy Lee. The Illustrated Standard of the Dairy Goat. Scottsdale, AZ: Dairy Goat Journal, 1977.

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2.

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ANIMAL SCIENCE CURRICULUM

UNIT: Rabbit Production

LENGTH: Three weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. use proper vocabulary relevant to rabbit production.
2. identify various breds of rabbits.
3. keep rabbits on a nutritionally sound feeding program.
4. house rabbits properly.
5. develop a sound breeding program for a rabbit project.
6. identify rabbit diseases, their prevention and treatment.
7. market and manage rabbits for profit.

CONTENT:

I. Identification of rabbit breeds and their uses
    - A. rabbits used for pets
    - B. rabbits used for meat production
    - C. rabbits used for fur and hide production
    - D. rabbits used for wool production
    - E. rabbits used for laboratory research

II. Rabbit breeding and reproduction
    - A. the importance of heredity and genetics
    - B. breeding schedules
    - C. gestation periods
    - D. artificial insemination
    - E. kindling and care of the litter
    - F. purchasing breeding stock

III. Rabbit management
    - A. handling rabbits
    - B. determination of sex
    - C. herd records and registration
    - D. castration

- E. prevention of vices--fur eating, cannibalism, wood chewing
- F. grooming, shaving and wool removal
- G. tattooing
- H. influence of extreme temperatures
- I. feeding balanced rations--feeds, hays, greens and root crop

IV. Rabbit diseases

- A. common rabbit ailments and diseases
- B. disease prevention
- C. diagnosis of diseases
- D. treatment of diseases
- E. treatment of diseases

V. Rabbit housing and equipment

- A. hutches
- B. shelters
- C. feeding equipment
- D. watering equipment
- E. nest boxes
- F. predator safe housing

VI. Rabbit marketing

- A. meat production and slaughtering
- B. skins and fur craft
- C. wool production
- D. pet rabbit production
- E. laboratory rabbit production

TEACHER ACTIVITIES:

1. Classroom lectures and discussions.
2. Field trips to local rabbitries, laboratories, pet shops, or students' rabbit SOE Projects.
3. Handouts and diagrams.
4. Flash cards of rabbit breeds.

STUDENT ACTIVITIES:

1. Classroom discussion based on pupil experience.
2. Compile notes and handouts.
3. Practice handling and grooming rabbits at school or on field trips.
4. Visit students with rabbit SOE Projects.

EVALUATION:

1. Weekly quizzes.
2. Evaluation of student behavior and involvement during field trips.
3. Evaluation of student involvement in class discussions.
4. Final unit exam.
5. Grading of notebooks.

RESOURCES:

1. Area rabbitries.
2. Students' rabbit SOE Projects.
3. Local research facilities.
4. Local pet shops.
5. American Rabbit Breeders Association's Standard of Perfection, P.O. Box 426, Bloomington, Illinois 61701.

BIBLIOGRAPHY:

1. Bennet, Bob. Raising Rabbits the Modern Way. Charlotte, VT: Garden Way.
2. Kanable, Ann. Raising Rabbits. Emmons, PA: Rodale Press, 1977.
3. Roberts, Mervin. Rabbits. Neptune City, NJ: R.F.H. Publications, 1984.
4. Roberts David. Encyclopedia of Pet Rabbits. Neptune City, NJ: R.F.H. Publications, 1979.
5. Templeton, George. Domestic Rabbit Production. Danville: Interstate, 1986.
6. Schwanz, Lee; Editor. Rabbits for Food and Profit. Brookfield, WI: Farmers Digest, 1984.

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2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Forage Crop Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. develop knowledge and skills necessary for growing different forage grasses and legumes that are economically important.
2. plan, develop and maintain a total forage program.
3. develop the knowledge and skills related to harvest, harvest methods and storage of forage crops.
4. identify weeds and other pests, and their control.
5. check yields and analyze forage.
6. understand environmental hazards of over use of fertilizers, pesticides and herbicides.
7. identify nutritional value of common forage crops.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Forage Producer	135:1(a-h), 135:2(a-c), 136:2(d-e), 136:3(a-g), 136:4(a-q), 136:5(a-h), 137:5(i), 137:6(a-q), 138:6(y)

CONTENT:

I. Importance of forage crops
   A. relationship to other feeds
   B. use in livetock feed programs
   C. benefits derived from forages

II. Growing forage crops
   A. legumes (e.g. alfalfa, red clover, birdsfoot trefoil and ladino clover)
      1. importance
      2. characteristics
      3. identification
      4. cultural practices

- B. grasses (e.g. corn, bromegrass, timothy, reed canary grass, orchard grass, Kentucky blue grass and ryegrass)
  1. importance
  2. characteristics
  3. identification
  4. cultural practices

III. Harvesting and storage forages

- A. hay
- B. silage
- C. pastures

IV. Forage management program

- A. total farm plan
- B. maintaining the forage program
- C. soil fertility and conservation
- D. pest control

TEACHER ACTIVITIES:

1. Lecture periods.

2. Lab and demonstration periods.

3. Text readings.

4. Handouts and work sheets on plant identification and characteristics, nutritional value, and fertilizer application.

5. Collect samples for forage identification.

6. Computer programs.

7. Transparencies and slides for identification

8. Field trips to local farms for actual experience.

STUDENT ACTIVITIES:

1. Make charts including:
   - A. legume, grasses
   - B. palatability
   - C. soil adaptation
   - D. fertilization

2. Maintain, check and adjust spraying equipment.

3. Visit local equipment dealer.

4. Soil preparation; tillage practices.

5. Plant varieties of grasses and legumes.

6. Take soil samples, perform soil tests, and make recommendation from the results.

7. Collect data from local farms

    A. crops
    B. acreage
    C. yield
    D. varieties
    E. harvesting methods
    F. storage

8. Discussion of net energy and digestible protein for comparing value of forage crops.

9. Compute net returns per acre using low yielding and high yielding fields.

10. Prepare a forage plan for a simulated farm situation.

11. Identify common grasses and legumes.

12. Grade and evaluate hay samples and silage samples.

EVALUATION:

1. Notebook grade.

2. Quizzes and test grades.

3. Work sheets.

4. Practical demonstrations.

5. Class and lab participation.

RESOURCES:

1. Local farms.

2. Experiment stations.

3. Seed and plant samples.

4. Cornell field crops handbook.

5. Hoffman's seed book.
6. Haymaker's handbook, New Holland.
7. Identification of grasses and legumes, University of Missouri.
8. Hay and Forage Growers Magazine.

BIBLIOGRAPHY:

1. Delorit, R.J. and Ahlgrn, H.L. Crop Production, 3rd ed. Englewood Cliffs, NJ: Prentice-Hall, 1967.
2. Murphy, Bill. Greener Pastures on Your Side of the Fence, Better Farming with Voisin Grazing Management. Colchester, VT: Arribe Publishing, 1987.
3. Stoskopf, Neal C. Understanding Crop Production. Reston, VA: Reston Publishing, 1981.
4. Waiton, Peter D. Production and Management of Cultivated Forages. Reston, VA: Reston Publishing, 1983.
5. Washko, W.W. Corn Production for Silage in Connecticut. Storrs, CT: University of Connecticut, 1969.

MEDIA:

1. Available from VEP:
   - A. slide series on Forage Production
   - B. filmstrip series on Forage Production
2. Available from AG-ED Media:
   - A. video series on Forage Production
   - B. computer programs on crop management, crop production and plant identification

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D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

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ANIMAL SCIENCE CURRICULUM

UNIT: Specialty Animal Production

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. identify "Specialty Animals".
2. demonstrate management skills related to each species (housing, sanitation, handling, general care).
3. understand breeding habits of each species.
4. prepare feed rations for various species.
5. demonstrate techniques for individual study.
6. set-up and operate a "Specialty Animal" project.
7. keep accurate records for project analysis.
8. develop marketing skills.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Turkey Grower	69:2(a-h), 70:5(a-e), 70:6(a-d), 70:7(a-c), 70:8(a-h), 70:10(a-d), 70:11(a-c), 71:12(a-c), 71:13(a-c)
Small Animal Supplier	116:1(a-d), 116:2(a), 117:2(b-g0, 117:3(a-g), 117:4(a-f), 117:5(a-b), 118:5(c-f0, 118:6(a-d), 118:7(a-e), 118:8(a-c), 118:9(a-c), 119:9(d-g)
Game Farmer	531:1(a-c), 532:9(a-e), 533:10(a-b), 533:12(a-c), 533:13(a-c), 533:15(a-c), 533:16(a-b), 533:17(a-c)

CONTENT:

I. Identification and uses of Specialty Animals

   A. mink, ferret, fox, marten, muskrat, weasel
   B. quail, pheasant, grouse
   C. turkeys, geese, ducks

II. Habits

   A. characteristics of life span
   B. mating seasons
   C. environment

III. Housing

   A. general environment
   B. space requirements
   C. nests, hutches, dens
   D. natural cover, artificial habitats
   E. sanitation/waste handling

IV. Breeding

   A. breeding seasons
   B. gestation/incubation
   C. number of young/eggs
   D. survival rate of young
   E. care of young
   F. selection of breeding stock

V. Feeding

   A. nutritional requirements
   B. feeding habits
   C. feeds and feed supplements
   D. balanced rations

VI. Handling and care

   A. proper (safe) handling methods
   B. grooming

VII. Health management

   A. vaccination schedules
   B. diseases
   C. treatment
   D. prevention

VIII. Recordkeeping

   A. production records
   B. cost analysis
   C. marketing

TEACHER ACTIVITIES:

1. Lectures, class discussions.
2. Lab demonstrations.
3. Specialists in various fields as guest speakers.
4. Set up notetaking routine for daily observations of animal habits.
5. Field trips to local breeders.
6. Prepare housing setups for classroom.
7. Prepare feed samples and feed rations.
8. Prepare management routines for class to use as guidelines for their own project.
9. Prepare a marketing system.
10. Develop recordkeeping system.
11. Provide resource materials for animals and equipment.

STUDENT ACTIVITIES:

1. Compile a notebook of lectures and labs, daily observations, feed rations, management practices, and financial records.
2. Perform management tasks.
3. Develop feed rations to fulfill nutritional requirements.
4. Develop breeding programs and implement program into the project.
5. Develop and use a marketing system.
6. Build housing facilities.

EVALUATION:

1. Test and quiz grades.
2. Project write-up.
3. Classroom and lab participation.
4. Notebook evaluation.

RESOURCES:

1. Field specialists.
2. Breeders.
3. Local turkey farmer.
4. Extension specialists.
5. Wildlife centers.
6. University of Connecticut, Natural Resources Department.
7. Department of Environmental Protection.
8. Fur buyers.
9. Classified advertisement section of outdoor sporting magazines.
10. Stromberg Supply Catalog, Stromberg Publishing Co., Pine River, MN.
11. Southeastern Outdoor Supply, Outdoor Supplies, Inc., Rte. 3, Box 503, Basset, Virginia 24055.

BIBLIOGRAPHY:

1. Dailey, E.J. Practical Muskrat Raising. Harding Publishing Co.
2. Harding, A.R. Ferret Facts and Fancies. Harding Publishing Co.
3. Harding, A.R. Fur Farming. Harding Publishing Co.
4. Hoesen, Van. Guinea Fowl, Pine River, Minnesota: Stromberg Publishing Co., 1975.
5. Klein, G.T. Starting Right with Turkeys. Charlotte, Vermont.
6. Quesenberry, Donnie. Fox Farming in the United States. Harding Publishing Co.

7. Scheid, Dan W. Raising Game Birds. Brookfield, Wisconsin: Farmer's Digest, 1979.

8. Sheraw, Darrel, Prof. Successful Duck and Goose Raising. Pine River, Minnesota: Stromberg Publishing Co., 1975.

9. Stromberg, Loyl. Sexing all Fowl Baby Chicks, Gamebirds, Cagebirds. Pine River, Minnesota: Stromberg Publishing Co., 1975.

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ANIMAL SCIENCE CURRICULUM

UNIT: Dairy Products

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. describe the handling and transfer of milk from farm to processing plant and discuss its potential effect on milk quality.
2. explain the processes of separation, pasteurization, ultra-pasteurization, standardization and homogenization.
3. discuss the content and implications of the grade A pasteurized milk ordinance and other federal and state regulations for milk production, processing and sales.
4. outline quality control methods for milk on the farm, in processing and in distribution.
5. describe the nutritional value of milk and milk products.
6. compare federal standards for preparation, composition and labeling of common dairy products.
7. list additional dairy products recently introduced into the market.
8. demonstrate a knowledge of the processing, composition and classification of cheese and cheese-related products.
9. identify major factors of milk marketing and explain their effect on farmer income and milk supply and demand.
10. evaluate milk and milk products for quality and differentiate real from imitation products.
11. recognize concerns specific to raw milk sales.
12. discuss the role of goat milk production and sales in the dairy industry.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Production Supervisor	338:1-4, 6
Milk Processor	339:1-12
Dairy Plant Helper	340:5-6
Salesroom Sales Person	341:10

Butter Maker	343:1-7
Ice Cream Maker	344:1-9
Cheese Maker	345:1-10
Maintenance Engineer	346:1-3
Laboratory Technician	348:1-12

CONTENT:

I. Initial handling of milk

- A. sanitation, handling, and cooling on the farm
- B. effect of cow health, stage of lactation and equipment functioning on milk quality
- C. trucking and transfer into holding silos
- D. separation into skim and cream
- E. pasteurization and ultra-pasteurization
    1. batch (low temperature, longer time0
    2. high-temperature, short-time
    3. ultra-pasteurization
    4. aseptic processing
- F. standardization of fat content
- G. homogenization

II. Laws and regulations

- A. Grade "A" Pasteurized Milk Ordinance
    1. inspection of dairy farms and milk plants
    2. examination of products
    3. standards for milk and milk products
    4. labeling of products
    5. pasteurization requirements
- B. other federal regulations
- C. state regulations
    1. additional or more stringent requirements

III. Quality control

- A. farm testing
    1. disease testing of cows
    2. temperature and cooling time of bulk tank
    3. cow side antibiotic testing
    4. somatic cell count

B. lab tests at plant

1. individual producer samples

   a. butterfat
   b. bacteria
   c. antibiotics
   d. other adulterants

2. truck samples

   a. flavor/odor
   b. butterfat
   c. bacteria
   d. antibiotics

3. plant samples (raw milk, pasteurized skim and cream, completed products)

   a. fat content
   b. bacteria
   c. cooling equipment
   d. equipment checks

4. quality control in distribution

   a. code date
   b. relationship of storage temperature and keeping quality
   c. handling and cooler temperature at retail outlets
   d. consumer education

IV. Nutritional value of milk

A. nutrient density as a complete food
B. protein content and quality
C. carbohydrates in milk
D. fat content
E. vitamin content
F. mineral content

V. Federal standards for preparation, composition and labeling

A. whole milk

1. preparation
2. fat
3. solids not fat (SNF)
4. vitamins A & D

B. lowfat milk

1. preparation
2. fat
3. SNF
4. vitamins

C. skim or non-fat milk

1. preparation
2. fat
3. SNF
4. vitamins

D. ultra high temperature milk (HT)

1. preparation
2. storage and keeping quality

E. evaporated milk

1. processing
2. water content
3. fat
4. total milk solids

F. sweetened condensed milk

1. processing
2. water content
3. sweetener
4. fat
5. total milk solids

G. dry milk

1. processing
2. moisture
3. fat

H. cultured products

1. processing
2. products commonly cultured

   a. buttermilk
   b. sour cream
   c. yogurt
   d. other

I. fluid cream products (by minimum fat %)
   1. half and half
   2. light cream
   3. light whipping cream
   4. heavy cream

J. frozen dairy products (preparation and composition)
   1. ice cream
   2. ice milk
   3. sherbet
   4. frozen yogurt

K. butter
   1. preparation
   2. fat
   3. butter/margarine mixtures

VI. Additional dairy products
   A. lactose reduced milk
   B. concentrated milk shake and ice milk mixes
   C. milk with added SNF
   D. flavored and carbonated milk
   E. low sodium milk

VII. Cheese
   A. definition
   B. general composition
   C. pasteurization and heat treated milk for cheese-making
   D. filtration or clarification of milk
   E. curd formation
   F. treatment of the curd
   G. curing or ripening
   H. classification of cheeses
   I. cheese-related products
      1. pasteurized process cheese
      2. pasteurized process cheese food
      3. cold pack cheese
      4. cold pack cheese food
      5. whey products
      6. other

VIII. Marketing
   A. class I and class I utilization of Grade A milk
   B. blend price
      1. base price per CWT
      2. butterfat differential
      3. protein differential

C. cooperative membership and direct sales
D. federal milk marketing order
E. dairy price support program
F. production control programs
G. producer contributions toward milk promotion
H. current aggressive marketing
I. seasonal changes in production and demand
J. effects of new technology and research on milk production and sales (growth hormone, UHT, etc.)
K. effect of consumer preferences
L. United Dairy Industry Association

    1. American Dairy Association
    2. National Dairy Council
    3. Dairy Research, Incorporated

IX. Evaluating dairy products

A. off flavors in milk
B. quality of processed products (cottage cheese, etc.)
C. differentiating between real and imitation products

X. Specialty dairy operations

A. sale of raw milk

    1. regulations
    2. health concerns

B. goat milk

    1. regulations
    2. composition compared to cow's milk
    3. marketing

TEACHER ACTIVITIES:

1. Lecture and discussion.

2. Guest speakers from processing or marketing.

3. Arrange field trips to farms, plants or small business (ice cream, yogurt, etc.).

4. Show slides and films.

5. Obtain samples for testing and evaluation.

6. Obtain ingredients for classroom production of ice cream, butter, etc.

7. Obtain cheese for identification.

STUDENT ACTIVITIES:

1. Discussion and notes.
2. Field trips.
3. Cow-side milk tests.
4. Review test returns to farms for milk composition, milk quality and blend price.
5. Perform lab tests for quality and composition.
6. Evaluate milk and product samples.
7. Compare and categorize common products by content and processing.
8. Collect and compare nutritional data from dairy and non-dairy products.
9. Identify cheese samples.
10. Produce products in class:
    - A. ice cream
    - B. whipped cream
    - C. butter
    - D. yogurt
    - E. cottage cheese

EVALUATION:

1. Notebooks.
2. Performance and participation in classroom and lab activities.
3. Assignments submitted.
4. Quizzes and tests.

RESOURCES:

1. Organizations and businesses
    - A. State Department of Health, Hartford
    - B. State Department of Agriculture, Hartford
    - C. U.S. Department of Health and Human Services, Food and Drug Administration, Region I, Boston, MA.
    - D. Food and Nutrition Department, U-CONN
    - E. Dairy Manufacturing Department, U-CONN
    - F. U-CONN Experiment Station, New Haven

G. New England Dairy and Food Council (National Dairy Council Affiliate), West Hartford
H. Milk Promotional Services, Inc., South Windsor
I. Agri-Mark, Newington and Springfield, MA
J. Local dairies
K. Small businesses in dairy products

BIBLIOGRAPHY:

1. National Dairy Council Publications

   A. Dairy Products Information Sheets
   B. Limitations of Imitations
   C. Newer Knowledge of CHeese
   D. Newer Knowledge of milk

2. PMO: Grade A Pasteurized Milk Ordinance, FDA.

3. Jones, Richard. Milk Marketing-An Instructional Package, Cornell.

4. Bandler, David and Barnard, Sydney. Milk Flavor and Quality...From Cow to Consumer. Cornell, 1984.

AUDIOVISUALS:

1. Nutrition Film and Video Catalog, New England Dairy and Food Council.

2. Milk Quality and Dairy Foods Contest (Slides), Cornell

3. Producing High-Quality Milk (Slides), Cornell

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ANIMAL SCIENCE CURRICULUM

UNIT: Meat Products

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. have an understanding of meat as a food and its contribution to human nutrition.
2. have a knowledge of the meat inspection system and its contribution to public health.
3. understand grades and the grading system as they relate to quality and yield of livestock.
4. demonstrate basic skills in meat handling, processing and merchandising.
5. identify primal, wholesale, and retail meat fabrications.
6. have an understanding of meat cookery and methods of meat carving.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Slaughter House Worker	359:1(a-y), 360:1(z-pp), 360:2(a-bb), 360:3(a), 361:3(b-t), 361:4(a-i), 361:5(a-n), 362:5(o), 362:6(a-q)
Processed Meats Worker	363:1(a-u), 363:2(a-f), 364:2(g-v)
Breaking House Worker	365:2(a-h), 366:2(i-r), 366:3(a-l), 366:4(a-h), 366:5(a-g), 366:6(a-f), 367:6(g-h), 367:7(a-e), 367:8(a-h)
Retail Meat Cutter	369:8(a-b), 370:8(c-dd), 371:11(a-x), 371:12(a-p), 372:13(a-q), 372:15(a-p), 372:16(a-b), 373:16(c-h)
Meat Inspector	374:1(a-u), 374:1(v-cc), 375:2(a-i), 375:3(a-p), 376:3(q), 376:4(a-k), 376:5(a-n), 376:6(a-h)

CONTENT:

I. Introduction

   A. what to accomplish
   B. history of meat industry - "The Jungle"
   C. meat inspection and food safety laws
   D. lab safety and knife sharpening

II. Inspection

   A. "Anti Mortem", live animal evaluation
   B. "Post Mortem", carcass and viscera inspection

III. Slaughter procedures

   A. equipment
   B. pre-slaughter handling of animals
   C. procedures

IV. Field trip to slaughter house

V. Slaughter in class

VI. Yield grade and quality grade classwork

   A. fundamentals of yield grading
   B. fundamentals of quality grading

VII. Field trip to slaughter house or packing plant to yield and quality grade

VIII. Breakdown of species into primal cut identification

IX. Breakdown into retail cuts

   A. beef
   B. sheep
   C. swine
   D. veal

X. Curing, smoking and processing

   A. brine curing vs. dry curing
   B. smoking to cure or cook
   C. processing sausage

XI. Preservation, packaging and labeling

XII. Marketing

XIII. Cutting test

XIV. Cooking methods

XV. Review

XVI. Exam

TEACHER ACTIVITIES:

1. Use lecture periods to explain history of industry inspection and food safety laws.
2. Demonstrate safety procedures and safe handling of equipment.
3. Demonstrate the procedures for grading and meat handling.
4. Plan field trips to slaughter houses for observation, yield grading and quality grading.
5. Use lecture periods to discuss differences between species, show slides and videos of meat handling and identification of cuts.
6. Use lab time for actual slaughter and cutting activities.

STUDENT ACTIVITIES:

1. Maintain a notebook on lecture and discussion sessions.
2. Answer study questions to be assigned periodically.
3. Cut meat, take cutting tests.
4. Make interpretations from cutting tests.
5. Make live evaluation of one or more species to be slaughtered.
6. Perform slaughter on one or all species.
7. Make yield and quality grade evaluations.
8. Use slides to learn retail cuts.

EVALUATION:

1. Review notebooks periodically.
2. Evaluate students' learning with quizzes.
3. Demonstrate lab techniques.
4. Results of cutting tests and quality and yield grading.

RESOURCES:

1. Vocational Education Procedures
   California State Polytechnical College
   San Luis Obispo, CA 93401
2. American Institute for "Career Opportunities in the Meat Packing Industry"
   Washington, D.C. 20250
3. National Livestock and Meat Board
   444 North Michigan Avenue
   Chicago, IL 60611
4. Lessons on Meat, National Livestock and Meat Board.
5. Butchering, Processing and Preservation of Meat
   National Farm Book Company
6. Basic Butchering of Livestock and Game
   National Farm Book Co.
7. Meat Species Charts and Study Handouts
   National Meat Board
8. Meat Evaluation Handbook
   National Livestock and Meat Board

BIBLIOGRAPHY:

1. Bloch, Barbara. The Meat Board Meat Book. New York: McGraw-Hill Co.
2. Romans, Ziegler. The Meat We Eat. Danville: Interstate.
3. Van Loon, Dirk. Small Scale Pig Raising. Charlotte, VT: Garden Way.
4. Levie, Albert. Meat Handbook, Fourth Edition. Westport, CT: AVI Publishing Co, Inc.

MEDIA:

1. Meat Evaluation: Beef Retail Cuts Evaluation
   Beef carcass and cuts judging
   Pork carcass and cuts judging
   Sheep carcass and cuts judging
2. Fundametals of Beef Quality Grading
3. Advanced Beef Quality Grading

4. Fundamentals of Beef Yield Grading
5. Advanced Beef Yield Grading
6. Practical Meat Retail Cut Identification
7. Creative Educational Video, Inc.
8. Catalog of Agricultural Video Tapes, 1986, Lubbock, Texas 79417.

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ANIMAL SCIENCE CURRICULUM

UNIT: Laboratory Animals Care and Services

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. discuss the scope and opportunities in the lab animal and research industries.
2. outline general housing and equipment guidelines for lab animals.
3. describe the methods and importance of sanitation and cleanliness.
4. list techniques of lab animal identification.
5. indicate information and records required in lab animal research and management.
6. outline life cycle and management information for individual species of lab animals.
7. discuss common clinical procedures used in research.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Laboratory Animal Assistant	269:2(a-k), 269:3(a-b), 269:4(a-j), 270:8(a-h), 271:10(a-q), 271:14(a-c), 271:15(a), 271:16(a-f)
Pet Shop Worker	274:3(a-t), 275:8(a-e), 276:13(a-d)
Kennel Worker	279:3(a-q), 279:4(a-f), 280:10(a-f), 281:14(a-j)
Dog Groomer	284:4(a-c), 285:8(a-e), 284:6(a-f)

CONTENT:

I. Career opportunities
   A. businesses involved in lab animals and research
   B. positions available

- C. training and certification
    - 1. schools
    - 2. American Association of Laboratory Animal Science
    - 3. Purina Laboratory Animal Care Course
- D. laws and regulations
- E. opposition to animal use

II. General housing requirements

- A. environmental control
- B. air flow and ventilation
- C. layout
- D. cages and bedding
- E. feeding and watering methods
- F. other equipment

III. Sanitation

- A. importance of cleanliness
    - 1. personal hygiene
    - 2. sanitizing
    - 3. sterilization
    - 4. disinfecting
- B. methods and equipment for sanitation
    - 1. physical cleaning
    - 2. germicidal and chemical cleaning
    - 3. rinsing
    - 4. mechanical cage and equipment washing machines
    - 5. autoclaves and steam pressure cabinets (sterilizers)
- C. disinfectants and cleaning compounds
    - 1. detergents and soaps
    - 2. phenol and phenol-like compounds
    - 3. chlorine compounds
    - 4. quaternary ammonium compounds
    - 5. iodine compounds
    - 6. other
- D. waste removal
- E. quarantine and isolation
- F. pest and odor control

IV. Recordkeeping

- A. animal identification
- B. cage labeling and instructions
- C. observations
- D. permanent records

V. Species information

*Mouse
*Rat
*Guinea Pig
*Rabbit
*Hamster
*Gerbil
*Dog
*Cat
*Monkey
*Chicken

A. size
B. vital signs
C. reproductive data
D. housing requirements
E. feeding recommendations
F. handling and restraint
G. diseases
H. behavior

VI. Clinical procedures

A. routes of drug administration
B. anesthesia
C. surgical and post-surgical care
D. euthanasia
E. blood collection
F. safety precautions

TEACHER ACTIVITIES:

1. Lecture and discussion.
2. Select and review reading material.
3. Contact individuals and businesses for possible speakers and field trips (field trips are often denied).
4. Obtain information on training programs and certification requirements for lab animal technicians.
5. Demonstrate methods of animal identification, drug administration, surgical techniques, blood collection, etc.
6. Prepare sample data for recordkeeping practice.

STUDENT ACTIVITIES:

1. Discussion and notes.
2. Reading assignments.
3. Field trips.

4. Prepare for and complete Purina Lab Animal Care Course and Aalas certification.
5. Practice methods of animal identification, drug administration, surgical techniques, blood collection, etc.
6. Complete record sheets.
7. Maintain lab animals at VoAg.
8. Complete charts and compare individual species information.
9. Develop a plan for a lab animal breeding operation (long-term project).

EVALUATION:

1. Student notebooks.
2. Quizzes and tests.
3. Classroom and laboratory participation.
4. Completed assignments.

RESOURCES:

1. Laboratory Animal Care Course.
2. Manual for Laboratory Animal Technicians.
3. Guide for the Care and Use of Laboratory Animals, USDA.

BIBLIOGRAPHY:

1. Arrington, L.R. Introductory Laboratory Animal Science. Danville: Interstate, 1973.
2. Harkness, John and Wagner, Joseph. The Biology and Medicine of Rabbits and Rodents. Philadelphia, PA: Lea and Febiger, 1977.
3. Pratt, Paul W. Medical Nursing for Animal Health Technicians. Goletta, CA: American Vet. Pub., 1985.
4. Laboratory Procedures for Animal Health Technicians. Goletta, CA: American Vet. Pub., 1985.

INDIVIDUAL TEACHER UNIT REVIEW

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1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resources	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Veterinary Services

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. discuss career opportunities and training required for veterinary assistants.
2. demonstrate reception and recordkeeping procedures commonly used in vet offices.
3. define terminology used in vet science.
4. describe important aspects of kennel and cage management.
5. demonstrate restraint for common vet procedures.
6. describe procedures for monitoring vital signs of animals.
7. explain methods for obtaining samples for lab testing.
8. discuss procedures and cautions of radiology.
9. describe and/or demonstrate common laboratory techniques.
10. outline responsibilities of veterinary technicians in surgery.
11. discuss procedures used in preparing prescriptions.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Beef Veterinary Assistant	32:1(a-r), 33:2(a-h), 34;3(a-e), 35:4(a-d)
Animal Health Assistant	263:1(a-k), 263:6(a-f), 265:10(a-g), 267:18(a-e), 267:19(a-e)

CONTENT:

I. Career opportunities

   A. small and large animal hospitals
   B. other businesses employing veterinary assistants
   C. positions available
   D. training and certification

II. Office skills

   A. reception and public relations

      1. desk
      2. phone

   B. recording and accounts
   C. admitting and discharging (assistant's professional role and limitation)
   D. answering common questions

III. Veterinary terminology

   A. terms of position
   B. body regions
   C. terms of anatomy and body systems
   D. common operations and procedures

IV. Kennel and cage management

   A. handling and safety
   B. cleaning and disinfecting
   C. observations
   D. special care
   E. general bathing and grooming

V. Assisting with examinations and treatments

   A. restraint for specific situations

      1. large animal treatments
      2. small animal treatments

   B. preparing exam room
   C. taking vital information

      1. pulse
      2. temperature
      3. respiration

D. obtaining samples for testing
   1. fecal
   2. urine
   3. blood
   4. skin scraping
   5. vaginal smears
   6. bacterial cultures

E. reproductive assistance
   1. artificial insemination
   2. assistance with parturition

F. radiology
   1. laws and cautions concerning exposure
   2. assisting with X-ray taking
   3. developing and fixing
   4. loading cassette
   5. labeling
   6. changing tank chemicals

G. veterinary assistant procedures
   1. stitches
   2. dental cleaning
   3. other duties as determined by vet

VI. Laboratory techniques
   A. fecal exam
   B. heartworm test
   C. making blood smears on slides
   D. preparing samples for outside lab testing
   E. urinalysis
   F. microchematocrit test (PCV)
   G. blood dip stick tests
   H. blood chemistry tests
   I. white blood cell counts (WBC)
   J. red blood cell count
   K. differential for complete blood count (CBC)
   L. other

VII. Sterilization and surgery
   A. observing sterile techniques
   B. identifying surgical equipment
   C. making surgery packs
      1. instrument
      2. gowns
      3. gloves

D. sterilizing equipment

  1. autoclave
  2. chemical
  3. gas

E. surgery preparation

  1. restraining for anesthesia
  2. shaving
  3. emptying bladder
  4. scrubbing
  5. positioning and draping

F. monitoring animal during surgery

  1. vital signs
  2. anesthesia

G. assisting veterinarian

  1. supplying blades, sutures, etc.
  2. emergency procedures
  3. sterile assistance: scrubbing in
  4. postoperative care

VII. Pharmacology

A. types of pharmaceuticals

  1. groups of drugs by use
  2. over the counter medication and supplies
  3. controlled and restricted drugs

B. preparing prescriptions

  1. following vet instructions
  2. abbreviations
  3. labeling
  4. special precautions

TEACHER ACTIVITIES:

1. Lecture and discussion.

2. Select and review reading and references.

3. Arrange for field trips and guest speakers.

4. Arrange for animals and demonstrate techniques.

5. Prepare sample data for student exercises in recordkeeping, inventory control, scheduling appointments, etc.

6. Demonstrate sterile techniques, laboratory procedures, X-ray procedures, etc.

STUDENT ACTIVITIES:

1. Discussion and notes.
2. Reading assignments.
3. Complete sample recordkeeping, inventory and account sheets.
4. Role-play receptionist situations.
5. List and define terms.
6. Practice restraint, lab, X-ray, sterile techniques, etc.
7. Identify surgical equipment.
8. Complete a chart comparing common drugs by use and indicating common names.
9. Prepare sample prescriptions.

EVALUATION:

1. Student notebooks.
2. Quizzes and tests.
3. Classroom and laboratory participation.
4. Completed assignments.

RESOURCES:

1. Businesses and organizations:

   A. local veterinarians
   B. Connecticut Association of Animal Health Technicians

BIBLIOGRAPHY:

1. Agricultural Cooperative Training: Veterinary Assistant. Texas: Vocational Instructional Services, 1974.

2. Animal Health Technology. Santa Barber, CA: American Veterinary Services, Inc., 1977.
3. Doerflinger, Carol. Veterinary Records and Office Procedures. Ithaca, NY: IMS.
4. Veterinary Technician Magazine, Veterinary Learning Systems Co., Inc., Lawrenceville, NJ.

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ANIMAL SCIENCE CURRICULUM

UNIT: Pet Care and Services

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. discuss requirements of dogs and cats as pets.
2. describe responsibilities and regulations concerning pet ownership.
3. list common breeds of dogs by AKC breed groups.
4. list common breeds of cats.
5. outline recommendations for reproductive management of dogs and cats.
6. demonstrate office skills used in pet care services.
7. describe information and skills essential to good kennel management.
8. discuss opportunities and techniques in dog training.
9. demonstrate skills in dog and cat grooming.
10. discuss the function and importance of animal control and welfare organizations.
11. outline care and selling recommendations for animals and products sold at pet shops.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Pet Shop Worker	273:1(a-i), 273:2(a-e), 274:2(f-r), 274:4(a-m), 275:5(a-f), 275:6(a-f), 275:11(a-f), 275:11(g-i), 276:12(a-h)
Kennel Worker	278:1(a-i), 279:3(a-q), 279:5(a-e), (g, h), 281:13(a-c), 281:16(a-i)
Dog Groomer	283:1(a-j), 283:3(a, e, f), 284:3(h), 284:5(a-q), 285:14(a-f), 286:14(c-i)

CONTENT:

I. General knowledge, dogs and cats

  A. responsibilities of ownership
  B. housing and equipment
  C. nutritional needs
  D. first aid
  E. handling and restraint
  F. laws and regulations

    1. licensing
    2. rabies vaccinations
    3. control and confinement

  G. breeds of dogs

    1. registration associations
    2. breed groups
    3. showing

  H. breeds of cats

    1. registration associations
    2. showing

  I. reproductive management

    1. estrous cycles
    2. neutering
    3. breeding
    4. whelping/queening
    5. care of newborn litters
    6. weaning
    7. sales and placement

II. Office skills for pet care services

  A. reception and public relations

    1. desk
    2. phone

  B. sales and marketing
  C. recordkeeping and accounts
  D. inventory control
  E. advertising and display

III. Kennel management

  A. opportunities and training required
  B. facilities and layout
  C. identification of animals

- D. cages and bedding
- E. sanitation and cleanliness
- F. exercising
- G. safe handling and restraint

IV. Dog training

- A. opportunities and training required
- B. socialization of young animals
- C. controlling dominance in dogs
- D. age and learning ability
- E. selecting appropriate equipment
- F. communicating with animals
    1. body language
    2. tone of voice
- G. using behavior modification
- H. obedience training
    1. getting the dog's attention
    2. correcting bad habits
    3. sit
    4. stay
    5. come
    6. heel
    7. other commands
- I. obedience trials and titles
    1. novice classes: companion dog (C.D.)
    2. open classes: companion dog excellent (C.D.X.)
    3. utility classes: utility dogs (U.D.)
    4. obedience trial championship (O.T.CH.)
- J. sheepdog training and trials
- K. police and guard dog training
    1. importance of proper training
    2. safety
    3. appropriate use of trained dog
- L. human services training
    1. seeing eye dogs
    2. dogs for the deaf
    3. other special training

V. Grooming

   A. opportunities and training required
   B. facilities and layout
   C. equipment
   D. skills and procedures

      1. bathing
      2. brushing and combing
      3. nails
      4. ears
      5. anal glands
      6. clipping scissor work
      7. specific breed cuts

VI. Animal control and welfare

   A. opportunities and training required
   B. local dog wardens and shelters
   C. Connecticut Humane Society
   D. local welfare leagues and community groups
   E. other related groups and organizations

VII. Pet shops

   A. opportunities and training required
   B. dog and cat sales
   C. small mammals
   D. birds
   E. fish
   F. pet supplies
   G. other products

TEACHER ACTIVITIES:

1. Lecture and discussion.

2. Select and review reading and references.

3. Arrange for field trips and guest speakers from the pet care industry.

4. Arrange for animals and demonstrate techniques handling, restraint, training and grooming.

5. Prepare sample data for student exercises in recordkeeping, inventory control, scheduling appointments, etc.

I. STUDENT ACTIVITIES:

1. Discussion and notes.
2. Reading assignments.
3. Field trips.
4. Complete sample recordkeeping and account sheets.
5. Determine prices for sample items.
6. Prepare and present a sales presentation.
7. Plan and prepare a display.
8. Roleplay reception and public relations activities.

EVALUATION:

1. Student notebooks.
2. Quizzes and tests.
3. Demonstrations and displays.
4. Completed assignments.
5. Classroom and laboratory participation.

RESOURCES:

1. Businesses and organizations:

   A. Connecticut Humane Society, Newington
   B. Fidelco
   C. local dog wardens
   D. breed and show associations
   E. local pet shops, groomers, kennels, obedience schools, etc.

2. Community Animal Control Magazine, P.O. Box 22599, Kansas City, MO 64113.

BIBLIOGRAPHY:

1. Campbell, Gary. Handling and Restraining Techniques for Pets and Laboratory Animals. Cornell.

2. Hillison and Crunkilton. Human Relations in Agribusiness. New York: McGraw-Hill, 1980.

3. Lee, D. and Lee, J. Agribusiness Procedures and Records. New York: McGraw-Hill, 1980.

4. Livesey, Dennis. Exploring Animal Care. Rutgers, NJ: Department of Education, 1977.

5. Long, Oliver, Coale. Introduction to Agribusiness Management. New York: McGraw-Hill, 1979.

6. McGuire, James Advertising and Display in Agribusiness. New York: McGraw-Hill, 1979.

7. Miller, Larry. Selling in Agribusiness. New York: McGraw-Hill, 1979.

8. Halsall, Eric. Sheepdog Trials. Bar Hill, Cambridge, England: Patrick Stephens Limited, 1982.

MEDIA:

1. Breeds of Dogs, Parts 1 and 2, Vocational Agriculture Service, Urbana, Illinois.

2. Small Animal Care--Cats, Vocational Education Productions, California.

3. Small Animal Care--Rabbits, Vocational Education Productions, California.

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D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

ANIMAL SCIENCE CURRICULUM

UNIT: Riding and Horsemanship (Advanced)

LENGTH: Six weeks. Select areas of content by student needs and time available.

WHEN TAUGHT: Grades 11 or 12

OBJECTIVES: The students will be able to:

1. use proper horsemanship and riding-related vocabulary.
2. be able to handle horses safely.
3. use proper tack and equipment.
4. know the basics of English, western and saddleseat equitation and driving.
5. know the basics of starting out a young horse.
6. turn a horse out properly for a show or other competition.
7. keep a barn properly cleaned and managed.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Horse Production Employee	62:5(a, b, d), 62:6(a, b), 62:7(a-e), 62:8(a)

CONTENT:

I. General overview of the following areas
   A. the variety of riding styles and competitions available for amateurs or professionals
   B. the development of a proper and professional approach to riding and working around horses
   C. preparing for a quality career in the horse world

II. Specific instruction in the following areas:
   A. proper vocabulary and terminology used in reference to horses in general and specific riding and handling procedures
   B. basics of proper equitation for the various riding styles
      1. correct let, seat and upper body position
         English riding-differentiate between huntseat (jumping seat) and dressage

2. correct use of leg, seat and rein aids for walk, trot, canter, jumping and various movements
3. riding on the correct diagonals and leads
4. correct leg, seat and upper body position for saddleseat equitation
5. correct use of leg, seat and rein aids-differentiate between 3-gaited and 5-gaited riding
6. correct leg, seat and upper body position for western riding
7. correct aids for walk, jog, and lope, spins and various other movements. Differentiate between pleasure, reining, trail and barrel racing

C. basics of proper driving

1. correct adjustment and use of a harness
2. proper ways for hitching up various carts
3. proper use of rein, voice and whip aids

D. types of tack and equipment

1. types of saddles and their advantages and disadvantages, include proper use of saddle pads, breastplates and girths
2. types of bits--their uses and proper adjustment
3. types of bridles--their uses and proper adjustments--include different types of nosebands, martingales, use of hackamores
4. miscellaneous equipment--galloping boots, bell boots, draw reins, side reins, hock hobbles, etc.
5. types of blankets, sheets and coolers

E. safety on and off the horse

1. troubleshooting for fire dangers in and around barns
2. troubleshooting for unsafe conditions in and around barns
3. proper way to handle horses safely
4. proper attire to be worn around horses
5. special safety precautions while riding alone or with others
6. safety precautions for transporting horses
7. safety precautions for working with dangerous horses

F. starting out a young horse

1. halter breaking and saddling
2. lunging
3. mounting and breaking to ride or drive
4. special training procedures for young horses

G. grooming procedures

1. use of various types of brushes
2. bathing
3. clipping and trimming
4. pulling manes and tails
5. braiding manes and tails
6. bandaging for support and protection
7. special polish for show and competition horses

H. barn maintenance

1. proper cleaning of stall
2. different types of bedding
3. proper storage of hay, grain, bedding, and tack and other equipment
4. turn out procedures
5. stall and tack room set up on the road

TEACHER ACTIVITIES:

1. Classroom lectures and discussions.
2. Field trips for demonstrations.
3. Field trips for practices.
4. Films, videos, slides.
5. Guest speakers.

STUDENT ACTIVITIES:

1. Classroom discussions based on pupil experience.
2. Keeping a notebook of class discussion and field trips.
3. Practice handling and working around horses.
4. Practice riding horses under supervision.
5. Practice proper riding and horsemanship on students' SOEP.

EVALUATION:

1. Weekly quizzes.
2. Evaluation of student conduct on field trips.
3. Final unit exam.
4. Grading of notebooks.

RESOURCES:

1. Area professionals.
2. Horse shows and competitions.
3. Area horse owners.
4. Student SOEPs.
5. Area tack shops.

BIBLIOGRAPHY:

1. Young, John R. The Schooling of the Western Horse, University of Oklahoma Press.
2. Harris, Susan. Grooming Your Horse. Unionville, PA: Gum Tree Store Press.
3. Richardson, Clive. Driving.
4. Sumner, D. Breaking Your Horse's Bad Habits. Wellesley, MA: Dover Saddlery.

MEDIA:

1. Videos available from Farnam Companies, Inc., P.O. Box 12068, Dept. JKC-504, Omaha, Nebraska 68112:
    - A. William Steinkraus - Basic Techniques of Riding and Jumping
    - B. Joe Heim - Cutting Clinic
    - C. Jerry Wells - The Winning Halter Horse
    - D. Tommy Manion - Western Pleasure
    - E. Martha Josey - Championship Barrel Racing
2. Video available from Equus Publications, 656 Quince Orchard Road, Gaithersburg, MD 20878:
    - A. Basic Horsemanship - Don Burt
3. Videos available from Dover Saddlery, 595 Washington Street, Wellesley, MA 02181:
    - A. The Art of Braiding
    - B. Royal Four in Hand
    - C. A World of Polo - Rolex
    - D. The Equestrian: 1984 Olympic Highlights

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BEEF - CATTLE RANCH FOREMAN

Job Description:

Supervise and coordinate activities of workers engaged in breeding, feeding, herding, marketing, and segregating beef breeding animals, and in construction and repair of fences, pens, buildings, and other ranch equipment. Inspects cattle, fences, buildings, equipment and feed supplies. Notes tasks to be done and assigns them to crews or individual workers. May perform other duties as assigned such as record keeping and buying and selling cattle. May be responsible for health and sanitation management.

Competencies Identified and Validated

N = 45*

Competencies		Weighted Mean**
1.	Supervise workers.	3.2
a.	Train workers for various jobs.	3.8
b.	Observe employee compliance to safety precautions.	3.4
c.	Suggest to workers improvements in methods of accomplishing work.	3.2
d.	Inform employees of benefits and responsibilities under regulatory law.	2.4
2.	Inspect cattle.	3.3
a.	Determine cattle condition.	3.6
b.	Determine the care needed for cow and calf at calving.	3.6
c.	Determine care needed for replacement heifers.	3.5
d.	Determine the treatment procedure for cattle diseases.	3.4
e.	Determine branding, marking, castrating, dehorning, and vaccinating of cattle that is to be done.	3.4
f.	Determine care needed for breeding bulls.	3.4
g.	Determine quantity of feed needed.	3.3
h.	Determine pasture rotation sequence.	3.2
i.	Determine quality and select roughage and concentrated feeds.	3.2
j.	Determine the treatment procedure for cattle parasites.	3.2

---

* Responses from 45 Cattle Ranch Foremen in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	k. Determine when to market cattle.	3.1
	l. Determine the type of cattle desired by feeders, breeders, packers, and consumers.	2.7
3.	Manage labor.	3.0
	a. Plan ranch work schedules.	3.5
	b. Determine and prepare for peak work loads.	3.4
	c. Develop harmonious relationships with workers.	3.4
	d. Determine labor requirements of the ranch.	3.1
	e. Assign workers according to skills and interests.	3.1
	f. Hire and fire ranch workers.	3.0
	g. Judge prospective employee qualifications.	3.0
	h. Negotiate specific arrangements with employees as to wages, working hours, fringe benefits, etc.	2.8
	i. Determine which regulatory laws concerning employees apply to the ranch.	2.6
	j. Develop workers' training programs.	2.4
4.	Keep records.	2.6
	a. Keep production, performance, and breeding records.	3.4
	b. Keep livestock and equipment inventories.	3.3
	c. Set up a record keeping system.	3.1
	d. Keep financial records.	2.8
	e. Determine efficiency of production.	2.8
	f. Keep personnel records.	2.7
	g. Prepare a budget.	2.7
	h. Determine rate of gain.	2.7
	i. Determine market costs.	2.5
	j. Figure per unit costs and return.	2.4
	k. Assist accountant in preparing tax returns.	2.2
	l. Execute responsibility for payroll and withholding.	2.2
	m. Figure depreciation.	1.9
	n. Determine ranch net worth.	1.7
5.	Market cattle.	3.1
	a. Cull undesirable cattle.	3.6
	b. Select desirable breeding cattle.	3.3
	c. Determine when to market cattle.	3.1
	d. Sell cattle at best market price.	2.9
	e. Evaluate current trends and prices to market or buy cattle.	2.9
	f. Buy cattle at best market prices.	2.8
6.	Manage the ranch.	2.9
	a. Schedule breeding times.	3.3
	b. Determine the number of bulls needed.	3.3

c.	Plan effective use of ranch equipment.	3.3
d.	Determine cleaning and sanitation practices for pens, sheds, and equipment.	3.2
e.	Insure timeliness of ranch operations.	3.2
f.	Determine when to use professional services.	3.2
g.	Determine the safety precautions to be observed.	3.2
h.	Determine ranch equipment needs.	3.1
i.	Plan the efficient utilization of available resources such as pasture, water, timber, etc.	3.1
j.	Plan movement of cattle for minimum shrinkage and disease control.	3.1
k.	Assist in determining long and short term goals of the ranch.	3.0
l.	Assist in planning the efficient utilization of and layout of buildings, equipment, etc.	3.0
m.	Balance cattle rations for specific purposes (lactation, show, etc.).	3.0
n.	Determine supplement feed needs and how it is to be fed.	3.0
o.	Develop plan for growing, storage, and use of feed crops.	3.0
p.	Determine cattle transportation needs.	3.0
q.	Arrange for transportation of cattle.	2.9
r.	Determine marketing practices to use.	2.7
s.	Assist in determining type and breed of cattle best suited to a situation.	2.7
t.	Determine if artificial insemination should be used.	2.6
u.	Assist in determining the type of operation best suited to the ranch (pure-bred, etc.).	2.6
v.	Determine the value of land to rent or buy.	2.2
w.	Assist in planning the ranch insurance program.	1.7

BEEF - ASSISTANT CATTLE RANCH FOREMAN

Job Description:

Assists with the supervision and coordination of workers engaged in breeding, feeding, herding, marketing, and segregating beef breeding animals, and in construction and repair of fences, pens, buildings, and other ranch equipment. Inspects cattle, fences, buildings, equipment, and feed supplies. Notes tasks to be done and assigns them to crews or individual workers. Keeps records and assists in management.

Competencies Identified and Validated

N = 42*

Competencies	Weighted Mean**
1. Supervise workers.	3.0
a. Observe employee compliance to safety precautions.	3.1
b. Suggest to workers improvements in methods of accomplishing work.	3.1
c. Train workers for various jobs.	3.0
2. Inspect cattle.	2.9
a. Determine cattle condition.	3.3
b. Assist in determining quality and in the selection of feed.	3.2
c. Determine the care needed for cow and calf at calving.	3.2
d. Assist in determining pasture rotation sequence.	3.1
e. Assist in determining branding, marking, castrating, dehorning, and vaccinating of cattle that is to be done.	3.1
f. Determine care needed for breeding bulls.	3.1
g. Determine the treatment procedure for cattle diseases.	3.0
h. Determine the treatment procedure for cattle parasites.	3.0
i. Determine care needed for replacement heifers.	3.0
j. Assist in determining the quantity of feed needed.	2.9

---

* Responses from 42 Assistant Cattle Ranch Foremen in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	k.	Assist in determining when to market cattle.	2.3
	l.	Assist in determining the type of cattle to raise.	2.1
3.	Manage labor.		2.9
	a.	Develop harmonious relationships with workers.	3.3
	b.	Assign workers according to skills and interests.	3.0
	c.	Assist in planning ranch work schedule.	2.9
	d.	Assist in determining labor requirements of the ranch.	2.9
	e.	Assist in developing workers' training programs.	2.6
	f.	Judge prospective employee qualifications.	2.6
4.	Keep records.		2.4
	a.	Keep production, performance, and breeding records.	3.0
	b.	Keep expense records.	2.7
	c.	Keep livestock and equipment inventory records.	2.7
	d.	Assist in keeping personnel records.	2.6
	e.	Determine rate of gain.	2.5
	f.	Determine market costs.	2.3
	g.	Assist in preparing a budget.	2.1
	h.	Assist in figuring per unit cost and return.	2.0
	i.	Assist in figuring depreciation.	1.7
5.	Market cattle.		2.8
	a.	Evaluate current trends and prices of cattle.	3.2
	b.	Assist in culling undesirable cattle.	3.0
	c.	Assist in the selection of breeding cattle.	2.6
	d.	Assist in determining when to market cattle.	2.4
6.	Manage the ranch.		2.7
	a.	Assist in determining cleaning and sanitation practices for pens, sheds, and equipment.	3.2
	b.	Assist in determining the safety precautions to be observed.	3.1
	c.	Assist in planning effective use of ranch equipment.	3.1
	d.	Assist in determining the number of bulls needed.	3.0
	e.	Assist in insuring timeliness of ranch operations.	2.9
	f.	Assist in determining supplemental feed needs and how it is to be fed.	2.9
	g.	Plan movement of cattle for minimum shrinkage and disease control.	2.9

h.	Assist in balancing rations.	2.8
i.	Assist in scheduling breeding times.	2.8
j.	Assist in determining ranch equipment needs.	2.7
k.	Assist in determining cattle transportation needs.	2.7
l.	Assist in planning the efficient utilization of available resources, such as pasture, water, timber, etc.	2.6
m.	Arrange for transportation of cattle.	2.5
n.	Assist in developing plans for growing, storage, and use of feed crops.	2.5
o.	Assist in determining when to use professional services.	2.4
p.	Assist in determining marketing practices to use.	2.3
q.	Assist in determining the value of land to rent or buy.	1.8

BEEF - CATTLE RANCH AND FARM HAND

Job Description:

Works on a farm or ranch devoted to the raising of cattle and crops. Attends to cattle, mixes feeds and additives, feeds beef cattle, cleans and sanitizes corrals, sheds, stalls, etc. Grooms and prepares cattle for show, and maintains buildings, fences and equipment used. Prepares soil for planting. Plants, fertilizes, cultivates, and irrigates crops. Harvests, and stores feed crops raised. Operates, repairs and maintains equipment for handling cattle and growing crops.

Competencies Identified and Validated

N = 46*

Competencies		Weighted Mean**
1.	Tend cattle.	3.0
a.	Detect cows having calving trouble.	3.8
b.	Pull calves when necessary.	3.8
c.	Care for calves at calving time.	3.7
d.	Detect cattle ready to calve.	3.6
e.	Assist in delivery of calves.	3.6
f.	Operate cattle handling equipment.	3.5
g.	Detect cattle with parasites or injury.	3.5
h.	Care for cattle in stalls, pens, or sheds.	3.4
i.	Spray, dip, and dust cattle for parasites.	3.4
j.	Detect signs of labor.	3.4
k.	Move cattle from pasture to pasture or into pens.	3.3
l.	Vaccinate for disease prevention.	3.2
m.	Identify symptoms of disease in cattle.	3.2
n.	Determine the general condition of cattle.	3.2
o.	Castrate cattle.	3.1
p.	Brand cattle.	3.1
q.	Mark cattle using ear notches, ear tags, tattoos, and waddles.	3.1
r.	Dehorn cattle.	3.1
s.	Control cattle on pasture by using a horse and/or dogs.	3.1
t.	Treat disease and injury of cattle.	3.1
u.	Care for calves at weaning.	3.1
v.	Load cattle on trucks.	3.1

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* Responses from 46 Cattle Ranch and Farm Hands in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

w.	Separate calves from cows at weaning.	3.0
x.	Bed stalls, pens, sheds, and cattle trucks.	3.0
y.	Detect cattle in heat.	2.9
z.	Read brands.	2.9
aa.	Dispose of dead animals as prescribed by law.	2.9
bb.	Drive trucks hauling cattle.	2.7
cc.	Rope cattle.	2.5
dd.	Cull undesirable cows.	2.4
ee.	Cull undesirable bulls.	2.4
ff.	Trim the feet of cattle.	2.4
gg.	Cast cattle with a rope.	2.2
hh.	Apply horn weights to young bulls or cows.	2.1
ii.	Pregnancy checks cattle.	1.9
jj.	Fit and show breeding cattle.	1.8
2.	Maintain facilities and equipment.	2.9
a.	Repair and maintain fences.	3.4
b.	Clean cattle pens and stalls.	3.3
c.	Maintain cattle handling equipment.	3.3
d.	Build fences.	3.2
e.	Repair and maintain buildings.	3.1
f.	Repair and maintain feeding and feed hauling equipment.	3.1
g.	Repair and maintain feed storage equipment.	3.0
h.	Maintain and repair tack.	2.9
i.	Construct shelters for cattle.	2.8
j.	Repair and maintain tractors.	2.8
k.	Build windbreaks for cattle.	2.7
l.	Repair, maintain, and adjust crop seeding and fertilizing equipment.	2.7
m.	Repair and maintain soil tillage equipment.	2.6
n.	Repair and maintain crop cultivation equipment.	2.6
o.	Repair and maintain crop harvesting equipment.	2.6
p.	Repair and maintain crop irrigation equipment.	2.2
q.	Follow drawings or blueprints in constructing buildings and equipment.	2.1
3.	Feed cattle.	2.9
a.	Provide proper amount and quality of water.	3.4
b.	Read and understand ingredients on a feed tag.	3.4
c.	Operate feed loading and moving equipment.	3.2
d.	Provide proper minerals for cattle.	3.2
e.	Place feed in feed bunks using hand and power equipment.	3.1
f.	Mix feeds for cattle.	2.9
g.	Identify nutrient deficiencies in cattle.	2.6
h.	Determine quality of feeds.	2.6
i.	Determine pasture quality and amount.	2.6
j.	Set up and provide creep feeding.	2.5
k.	Determine feed needs of cattle.	2.3

4.	Keep records.	2.1
a.	Use scales and record obtained weights of crops and cattle.	2.7
b.	Keep cattle breeding records.	2.2
c.	Keep cattle feeding records.	2.2
d.	Keep cattle production records.	2.0
e.	Keep cattle and crop expense records.	1.8
f.	Keep crop production records.	1.7
5.	Produce feed.	2.8
a.	Plant grain and hay crops.	3.1
b.	Apply fertilizers.	3.1
c.	Bale forage crops.	3.1
d.	Plow crop land.	3.0
e.	Till soil to prepare for seeding.	3.0
f.	Haul and store crop.	3.0
g.	Cultivate crops for soil tilth and weed control.	2.9
h.	Apply weed control chemicals.	2.8
i.	Apply chemicals to control weeds and pests of crops.	2.8
j.	Cut silage for feed.	2.8
k.	Cut forage crops.	2.8
l.	Combine grains.	2.7
m.	Irrigate crops.	2.6
n.	Mark fields for irrigation.	2.1
6.	Perform other duties.	2.5
a.	Read pesticide labels and directions for use.	3.3
b.	Read vaccine and medicine labels and directions for use.	3.3
c.	Read seed labels and directions for planting rate.	2.9
d.	Store vaccines and medications.	2.7
e.	Store fertilizers.	2.4
f.	Store pesticides.	2.3
g.	Plant windbreaks for cattle.	1.7
h.	Butcher and cut up beef for ranch use.	1.3

BEEF - COWPUNCHER

Job Description:

Attends to beef cattle on stock ranch. Rides horse to drive cattle in desired direction and to round up stray cattle. Castrates, vaccinates, and brands cattle. Inspects fences from horseback or motor vehicle and repairs them. Rides over the range to search for cattle. Feeds cattle during cold weather. Rounds up horses on open range. Breaks horses and trains them for saddle. Repairs and maintains equipment for feeding and watering cattle.

Competencies Identified and Validated

N = 42*

	Competencies	Weighted Mean**
1.	Tend cattle.	3.2
a.	Detect cattle ready to calve.	3.8
b.	Assist in delivery of calves.	3.7
c.	Pull calves when necessary.	3.7
d.	Detect cows having calving trouble.	3.7
e.	Dehorn cattle.	3.6
f.	Control cattle on the range using a horse and dogs.	3.5
g.	Move cattle on the range.	3.5
h.	Care for calves at calving time.	3.5
i.	Round-up cattle.	3.5
j.	Determine the general condition of cattle.	3.4
k.	Detect cattle with parasites or injury.	3.4
l.	Detect signs of labor.	3.4
m.	Brand cattle.	3.3
n.	Mark cattle using ear notches, ear tags, tattoos, and waddles.	3.3
o.	Vaccinate cattle for disease control.	3.3
p.	Identify symptoms of disease in cattle.	3.3
q.	Treat disease and injury of cattle.	3.3
r.	Separate calves from cows at weaning time.	3.3
s.	Read brands.	3.3
t.	Operate cattle handling equipment.	3.3
u.	Castrate cattle.	3.2
v.	Spray, dip, and dust cattle for parasites.	3.2
w.	Care for calves at weaning.	3.2
x.	Detect cattle in heat.	3.1

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* Responses from 42 Cowpunchers in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

y.	Rope cattle.	3.1
z.	Load cattle on trucks.	3.0
aa.	Cast cattle with a rope.	2.9
bb.	Dispose of dead animals as prescribed by law.	2.8
cc.	Drive trucks loaded with cattle.	2.6
dd.	Trim feet of cattle.	2.3
ee.	Apply horn weights to young cows and bulls.	2.2
2.	Maintain facilities and equipment.	3.1
a.	Maintain windmills and springs for water.	3.4
b.	Ride fences to detect repairs needed.	3.3
c.	Repair fences.	3.3
d.	Maintain cattle handling equipment.	3.1
e.	Maintain and repair saddles and other tack.	3.1
f.	Repair and maintain corrals.	3.0
g.	Construct fences.	3.0
h.	Maintain cattle feeding equipment.	3.0
i.	Construct corrals.	2.9
j.	Construct shelters for cattle.	2.5
3.	Feed cattle.	2.9
a.	Feed supplemental roughage and protein during the winter.	3.3
b.	Distribute mineral blocks on the range.	3.2
c.	Provide for proper amount and quality of water.	3.2
d.	Operate feeding and feed handling equipment.	3.1
e.	Determine pasture quantity and quality.	3.0
f.	Identify nutrient deficiencies in cattle.	2.7
g.	Determine when to start winter feeding.	2.6
h.	Pack mineral blocks on horses.	2.5
i.	Determine supplemental feed needed.	2.5
4.	Train and care for horses.	2.7
a.	Provide proper feed and water for horses.	3.4
b.	Detect and treat injury to horses.	3.2
c.	Determine general condition of horses.	3.1
d.	Detect and treat horses for parasites.	3.0
e.	Detect and treat diseases of horses.	3.0
f.	Haul horses in truck or trailer.	2.9
g.	Train horses for roping.	2.8
h.	Halter break horses.	2.8
i.	Drive horses.	2.8
j.	Round-up horses.	2.7
k.	Break horses to saddle.	2.7
l.	Train horses to rein.	2.7
m.	Rope horses.	2.5
n.	Shoe horses.	2.4
o.	Train horses for packing.	2.2
p.	Brand horses.	2.1
q.	Castrate stallions.	1.7

BEEF - RANCH LABORER

Job Description:

Participates in branding, dehorning, and castrating. Herds animals to pens and pastures. Applies prescribed medications. Digs post holes by hand, repairs fences and buildings using hand tools, pulls weeds by hand, removes trash and dirt from watering places. Mixes feed by hand. May ride horseback to assist in herding. Does not operate mobile or stationary power-driven equipment.

Competencies Identified and Validated

N = 41*

Competencies		Weighted Mean**
1.	Tend cattle.	3.2
a.	Assist with calving.	3.4
b.	Assist with branding and marking cattle.	3.3
c.	Assist with castrating cattle.	3.2
d.	Assist with dehorning cattle.	3.2
e.	Assist with herding cattle. May ride horseback.	3.2
f.	Fill water troughs where power equipment is not required.	3.2
g.	Assist with treatment and medication of cattle.	3.2
h.	Assist with loading and unloading cattle.	3.2
i.	Operate cattle handling equipment that is not powered.	3.1
2.	Maintain facilities and equipment.	3.4
a.	Assist with construction of fences.	3.9
b.	Maintain fences.	3.5
c.	Clean pens, stalls, and shelters by hand.	3.3
d.	Maintain pens, stalls and shelters using hand tools.	3.3
e.	Assist with the construction of pens, stalls, and shelters using hand tools.	3.3
f.	Clean watering places by hand.	3.2
g.	Clean equipment using hand scraper, water, and brushes or rags.	3.1

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* Responses from 41 Ranch Laborers in 21 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

3.	Handle crops, feeds and bedding.	3.0
a.	Feed cattle where power equipment is not required.	3.4
b.	Load, unload, and stack bales of hay or straw by hand.	3.2
c.	Bed cattle pens and shelters by applying bedding by hand.	3.1
d.	Bed trucks for hauling cattle by hand.	3.1
e.	Handle feed by using hand tools.	3.0
f.	Mix feed by hand using a specified formula.	3.0
g.	Clean ditch with a shovel or spade.	2.9
h.	Irrigate using a shovel or spade.	2.7
i.	Weed crops with a hoe or by pulling weeds by hand.	2.4

BEEF - ARTIFICIAL INSEMINATOR

Job Description:

Stores and handles semen and inseminates prepared semen into the reproductive tract of cows. Observes animals for heat, restrains eligible cattle observed in heat, selects and inseminates with proper semen using proper techniques and sanitation, maintains pertinent records, (cow, semen, date, etc.).

Competencies Identified and Validated

N = 37*

Competencies	Weighted Mean**
1. Handle cattle.	3.7
a. Detect cattle in heat.	3.8
b. Determine best time to inseminate.	3.8
c. Maintain breeding records.	3.7
d. Move cattle gently to and from breeding chute.	3.6
e. Operate breeding chute.	3.6
f. Identify symptoms of reproductive diseases in cattle.	3.5
2. Handle semen.	3.8
a. Maintain clean sanitary equipment.	3.9
b. Remove semen from storage without exposing remaining semen to elevated temperatures.	3.9
c. Protect semen and insemination equipment from adverse environment (sun, heat, cold, wind, etc.).	3.9
d. Maintain semen storage and handling equipment.	3.8
e. Thaw semen.	3.8
f. Fill pipette or straw insemination gun.	3.8
g. Handle semen frozen in straws and ampules.	3.8
h. Transfer semen from central storage when receiving semen.	3.6
3. Inseminate cows.	3.8
a. Identify the reproductive tract by pre-rectal palpation and locate cervix quickly.	3.9

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* Responses from 37 Artificial Inseminators in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

b.	Insert pipette into the vagina quickly and cleanly and pass it through the cervix.	3.9
c.	Deposit semen into the body of the uterus with proper penetration.	3.8
d.	Deposit semen with proper speed.	3.7
e.	Sanitize external genital organs.	3.6

BEEF - VETERINARY ASSISTANT

Job Description:

Cares for cattle under treatment in hospital pens and shelters for disease and injury. Rides pens and pastures on horseback and detects sick and injured cattle. Drives cattle to and from hospital, operates cattle restraining equipment. Keeps hospital equipment and facilities clean and disinfected and sterilizes equipment. Administers medications and treatment under the direction of the veterinarian. Performs duties such as vaccination, castration, dehorning, and marking, using various methods. Keeps and maintains records of vaccinations, disease, and treatments.

Competencies Identified and Validated

N = 35*

Competencies	Weighted Mean**
1. Care for and treat cattle.	3.4
a. Identify symptoms of disease and injury.	3.9
b. Vaccinate cattle for disease control.	3.8
c. Give medications with syringe or hypodermic needle.	3.7
d. Give medications to cattle orally, using the proper equipment.	3.7
e. Apply medication to injuries.	3.7
f. Assist veterinarian in surgery.	3.7
g. Castrate cattle.	3.6
h. Detect diseased or injured animals.	3.6
i. Provide proper feed and water for cattle in hospital.	3.5
j. Give medication to cattle through feed and water.	3.5
k. Dehorn cattle.	3.4
l. Clip hair on animals to prepare for surgery or to read identification marks.	3.3
m. Implant cattle with growth stimulants.	3.3
n. Mark cattle by branding, ear marking, and ear tagging.	3.2
o. Spray, dip, and dust cattle.	3.1
p. Ride horse through pens and pastures.	3.0
q. Properly dispose of cattle that have died.	2.9
r. Move cattle to and from pens, pastures, and hospital.	2.8

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* Responses from 35 Veterinary Assistants in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

2.		Care for and use facilities and equipment.	3.3
	a.	Clean, disinfect, and sanitize equipment.	3.8
	b.	Identify common medical equipment.	3.7
	c.	Clean and disinfect hospital shelters and pens.	3.5
	d.	Maintain cattle handling and medical equipment.	3.4
	e.	Maintain hospital pens and shelters.	3.3
	f.	Operate cattle restraining equipment.	3.3
	g.	Develop hospital pens and shelters.	3.0
	h.	Operate scales to determine weight.	2.6
3.		Keep records.	3.6
	a.	Keep records of vaccinations.	3.9
	b.	Keep records of disease treatment.	3.8
	c.	Keep records of injuries.	3.6
	d.	Keep records of cattle death loss.	3.6
	e.	Keep records of costs involved in prevention, treatment, and control of disease and injury to cattle.	3.2
4.		Buy and care for medicants.	3.5
	a.	Read directions on vaccines and medicants.	3.9
	b.	Read and understand cattle medical terminology.	3.7
	c.	Dispose of empty vaccine and medicine containers.	3.4
	d.	Buy and maintain stock of vaccines, medicants, supplies, and equipment needed.	3.2

BEEF - FEED LOT FOREMAN

Job Description:

Supervise and coordinate activities of workers engaged in feeding, caring for, and segregating feed lot cattle and in construction and repair of pens, shelters and other feed lot equipment. Inspects cattle, pens, shelters, equipment and feed supplies. Notes tasks to be done and assigns them to crews or individual workers. May perform other duties as assigned, such as record keeping and buying and selling feed lot cattle. May be responsible for health and sanitation management.

Competencies Identified and Validated

N = 35*

	Competencies	Weighted Mean**
1.	Supervise workers.	3.2
a.	Suggest improvements in methods of accomplishing work to workers.	3.5
b.	Observe employee compliance to safety precautions.	3.3
c.	Train workers for various jobs.	3.2
d.	Inform employees of benefits and responsibilities under regulatory laws.	2.9
2.	Inspect cattle.	3.3
a.	Determine cattle condition.	3.9
b.	Determine care needed for feed lot cattle.	3.7
c.	Determine quality of feeds.	3.6
d.	Determine branding, marking, castrating, dehorning and vaccinating that is to be done.	3.4
e.	Select feeds for feed lot cattle.	3.2
f.	Determine treatment procedure for cattle diseases.	3.2
g.	Determine treatment procedure for cattle parasites.	3.1
h.	Determine hormones and/or growth stimulants to be used.	3.1
i.	Determine when to market cattle.	3.1
j.	Determine the type of cattle desired by packers and consumers.	2.9
k.	Determine when to buy cattle.	2.7

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* Responses from 35 Feed Lot Foremen in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

3.	Manage labor.	3.3
a.	Plan feed lot work schedule.	3.7
b.	Judge prospective employee qualifications.	3.5
c.	Develop harmonious relationships with workers.	3.4
d.	Determine labor requirements for the feed lot.	3.4
e.	Determine labor needed and prepare for peak work loads.	3.4
f.	Hire and fire feed lot workers.	3.3
g.	Assign workers according to skills and interests.	3.2
h.	Develop workers' training programs.	3.1
i.	Determine which regulatory laws, concerning employees, apply to the operation.	3.0
j.	Negotiate specific arrangements with employees as to wages, working hours, fringe benefits, etc.	2.9
4.	Keep records.	2.7
a.	Keep livestock and equipment inventories.	3.4
b.	Set up a record keeping system.	3.2
c.	Keep personnel records.	3.2
d.	Keep production records.	3.0
e.	Keep financial records.	2.9
f.	Prepare operation budget.	2.8
g.	Determine market costs.	2.8
h.	Determine rate of gain.	2.8
i.	Determine feed lot net worth.	2.4
j.	Prepare per unit costs and return.	2.4
k.	Execute responsibility for payroll and withholding.	2.4
l.	Assist accountant in preparing tax returns.	2.3
m.	Determine efficiency of production.✓	2.1
n.	Figure depreciation.	2.1
5.	Market cattle.	2.8
a.	Determine when to market cattle.	2.9
b.	Sell cattle at best market price.	2.8
c.	Buy feed at best price.	2.8
d.	Evaluate current trends and prices to market or buy cattle.	2.7
e.	Select desirable feeder cattle.	2.7
f.	Buy feeder cattle at best market price.	2.4
6.	Manage the feed lot.	3.0
a.	Determine cleaning and sanitation requirements for the feed lot.	4.0
b.	Plan effective use of equipment.	3.6
c.	Determine feed lot equipment needs.	3.6
d.	Insure timeliness of operations.	3.6

BEEF - ASSISTANT FEED LOT FOREMAN

Job Description:

Assists with the supervision and coordination of activities of workers engaged in feeding, caring for, and segregating feed lot cattle, and in constructing and repairing of pens, shelters, and other feed lot equipment. Inspects cattle, pens, shelters, equipment and feed supplies. Notes tasks to be done, and assigns them to crews or individual workers. Keeps records as assigned, and assists in management.

Competencies Identified and Validated

N = 35*

Competencies	Weighted Mean**
1. Supervise workers.	3.3
a. Train workers for various jobs.	3.4
b. Suggest improvements in methods of accomplishing work to workers.	3.3
c. Observe employee compliance to safety precautions.	3.2
2. Inspect cattle.	2.9
a. Determine cattle condition.	3.6
b. Assist in determining care needed for feed lot cattle.	3.5
c. Assist in determining branding, marking, castrating, dehorning and vaccinating to be done.	3.3
d. Determines treatment procedure for cattle parasites.	3.2
e. Assist in determining quality of feed.	3.1
f. Determine treatment procedure for cattle diseases.	3.1
g. Assist in determining implant use of hormone and growth stimulants.	3.0
h. Assist in selection of feeds.	2.7
i. Assist in determining when to market cattle.	2.3
j. Assist in determining the type of cattle to be fed.	2.0
3. Manage labor.	3.4
a. Assist in developing workers' training plans.	3.6

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* Responses from 35 Assistant Feed Lot Foremen in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

b.	Develop harmonious relationships with workers.	3.5
c.	Assist in planning feed lot work schedule.	3.4
d.	Assign workers according to skills and abilities.	3.4
e.	Assist in determining labor requirements for the feed lot.	3.3
f.	Judge prospective employee qualifications.	3.0
4.	Keep records.	2.7
a.	Keep production records.	3.1
b.	Keep livestock and equipment inventory records.	3.0
c.	Assist in determining efficiency of production.	2.8
d.	Determine rate of gain.	2.7
e.	Assist in keeping personnel records.	2.6
f.	Assist in preparing operation budget.	2.3
g.	Assist in preparing per unit costs and return.	2.1
h.	Keep financial records.	2.1
i.	Assist in determining market costs.	2.0
j.	Assist in figuring depreciation.	1.7
5.	Market cattle.	2.0
a.	Assist in determining when to market cattle.	2.2
b.	Buy feed at best price.	2.2
c.	Evaluate current trends and prices to market or buy cattle.	2.0
d.	Assist in selling cattle.	2.0
e.	Assist in the selection of desirable feeder cattle.	1.9
f.	Assist in buying feed lot cattle.	1.6
6.	Manage the feed lot.	2.8
a.	Determine cleaning and sanitation requirements for the feed lot.	3.3
b.	Assist in determining feed lot equipment needs.	3.3
c.	Insure timeliness of operations.	3.3
d.	Assist in planning efficient utilization of pens and shelters.	3.3
e.	Assist in determining safety precautions to be observed.	3.3
f.	Assist in planning effective use of equipment.	3.3
g.	Assist in determining when to use professional services.	3.2
h.	Assist in planning efficient use of feed, water, and storage.	3.1
i.	Plan transportation of cattle for minimum weight loss and disease control.	2.5

j.	Arrange for transportation of cattle.	2.3
k.	Assist in determining cattle transportation needs.	2.3
l.	Assist in determining market practices to use.	2.2
m.	Assist in developing plans for growing and storing feed crops.	2.2
n.	Assist in balancing rations for cattle on feed.	2.1

BEEF - CATTLE BUYER

Job Description:

Purchases cattle from yards and individual cattle raisers to be fed out or for resale to packers. Inspects, grades, and calculates weight of livestock to determine value and yield. Purchases cattle according to authorization or prospect for resale. Contacts carriers to arrange for transportation of cattle to feed lot or other destination. Sells stock to packing houses or other purchasers. Keeps purchasing and selling records.

Competencies Identified and Validated

N = 37*

Competencies	Weighted Mean**
1. Purchase and sell cattle.	3.3
a. Locate cattle for purchase.	3.9
b. Apply available market information to buy and sell cattle.	3.9
c. Establish and maintain effective working relationships with cattle brokers, sale barns, commission agencies, private cattle producers, and packing houses.	3.9
d. Purchase and sell cattle of specific grade.	3.8
e. Purchase and sell cattle of specific weight.	3.8
f. Negotiate for the purchase or sale of cattle within a set price structure.	3.8
g. Arrange for bills-of-sale.	3.7
h. Determine transportation needs for cattle.	3.6
i. Determine cattle shipping costs.	3.6
j. Arrange for transportation of cattle.	3.5
k. Arrange for health certificates.	3.5
l. Arrange for brand inspections.	2.7
m. Understand auctioneers and bid on cattle at sale yard.	2.5
n. Load cattle on trucks.	2.4
o. Drive trucks loaded with cattle.	1.2
2. Inspect cattle.	3.7
a. Determine general condition of cattle.	3.9
b. Identify symptoms of disease in cattle.	3.9
c. Identify injuries on cattle.	3.9
d. Determine the weight of cattle.	3.9

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* Responses from 37 Cattle Buyers in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	e.	Determine grades of cattle.	3.8
	f.	Identify symptoms of parasites in cattle.	3.7
	g.	Determine estimated yield of cattle.	3.7
	h.	Identify symptoms of nutrient deficiency in cattle.	3.2
	i.	Read brands on cattle.	2.8
3.	Keep records.		3.3
	a.	Keep purchase records.	3.8
	b.	Keep sales records.	3.8
	c.	Keep transportation cost records.	3.0
	d.	Keep brand inspection records.	2.6
	e.	Keep health certificate records.	2.5

BEEF - FEED LOT LABORER

Job Description:

Tends cattle and feed crops, participates in marking, dehorning, and castrating cattle, herds cattle to and from pens, may apply prescribed medication, digs post holes by hand, pulls weeds by hand or chops weeds with a hoe; cleans pens and shelters using hand tools, does cattle feeding not requiring the use of power equipment, handles feed using scoop shovel, stacks and loads bales of hay or bedding by hand. Does not operate mobile or stationary power-driven equipment.

Competencies Identified and Validated

N = 33*

Competencies	Weighted Mean**
1. Tend cattle.	3.0
a. Assist with herding cattle between various pens.	3.1
b. Operate cattle handling equipment that is not powered.	3.1
c. Fill water troughs where power equipment is not required.	3.1
d. Assist with loading and unloading cattle.	3.1
e. Assist with branding and marking cattle.	3.0
f. Assist with dehorning cattle.	3.0
g. Assist with castrating cattle.	2.9
h. Assist with treatment and medication of cattle.	2.9
2. Maintain facilities and equipment.	3.1
a. Clean watering places by hand.	3.4
b. Clean feed troughs by hand.	3.4
c. Maintain shelters and pens using hand tools.	3.3
d. Clean equipment using hand scraper, water, brush and rags.	3.3
e. Clean shelters and pens by hand.	3.0
f. Assist in construction of cattle pens and shelters.	3.0
g. Clean silos and silage pits by hand.	3.0
h. Clean mineral feeders by hand.	2.8

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* Responses from 33 Feed Lot Laborers in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not important; 0 = Does Not Apply.

3.	Handle crops, feeds, and bedding.	2.7
a.	Feed cattle where hand labor is required.	3.4
b.	Load and unload bales of hay or bedding by hand.	2.9
c.	Stack hay and bedding using a fork or by moving bales by hand.	2.9
d.	Bed cattle shelters and pens by hand.	2.9
e.	Use shovel or spade to clean ditches.	2.7
f.	Bed trucks for hauling cattle by hand.	2.6
g.	Load feed grains and unload feed grains using scoop shovel.	2.5
h.	Mix feed by hand using specified formula.	2.4
i.	Load and unload silage by hand.	2.4
j.	Use shovel or spade to irrigate.	2.3
k.	Weed crops with a hoe or by hand.	2.1

BEEF - FEED TRUCK DRIVER

Job Description:

Drives a special feed hauling truck in transporting prepared feed to cattle pen feeding bunks as assigned. Unloads truck with the power driven mechanism and distributes feed in feed bunks. Performs maintenance on the truck such as lubrication, changing oil, and does minor repair such as replacing light bulbs, fuses, and changing tires. Keeps trucks clean. Inspects the truck for proper operation and safety.

Competencies Identified and Validated

N = 35*

Competencies	Weighted Mean**
1. Drive and load truck.	3.8
a. Drive gas or diesel truck.	3.8
b. Operate unloading mechanism.	3.8
c. Distribute feed in feed bunks.	3.8
d. Position truck for loading feed.	3.8
2. Inspect and maintain truck.	3.6
a. Check oil, change according to schedule.	3.8
b. Fill truck with fuel, service fuel filter.	3.8
c. Check oil, change according to schedule.	3.7
d. Check coolant, service when needed.	3.7
e. Check water level in battery, add water when needed.	3.7
f. Maintain truck in safe operating condition.	3.7
g. Lubricate truck and unloading mechanism according to schedule.	3.6
h. Check brakes, service when needed.	3.6
i. Check lights and other electrical devices; replace bulbs and fuses when needed.	3.5
j. Check tires, change them when needed.	3.4
3. Keep records.	3.4
a. Keep records of pens fed.	3.6
b. Operate scales and record weights of feed.	3.6
c. Keep records of feed hauled.	3.5
d. Keep records of truck repairs.	3.1
e. Keep records of truck maintenance.	3.0

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* Responses from 35 Feed Truck Drivers in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

BEEF - FEED LOT HAND

Job Description:

Attends feedlot cattle. Mixes feeds and additives, fills feed troughs with grain and roughage and fills water troughs. Drives livestock to and from various pens, examines cattle to detect disease and injury. Vaccinates, castrates, dehorns, and marks cattle. Applies medications and treats diseases and injury. Sprays, dusts, and dips cattle; operates cattle restraining equipment, cleans and sanitizes pens and shelters. Maintains buildings, pens, and equipment. Plants, cultivates, harvests, and stores feed grains and roughages. Maintains production and cost records.

Competencies Identified and Validated

N = 36*

	Competencies	Weighted Mean**
1.	Tend cattle.	3.2
a.	Identify injuries on cattle.	3.5
b.	Apply medicants by using syringe.	3.5
c.	Dehorn cattle.	3.4
d.	Mark cattle by using paint and chalk, by using ear tags and ear notches.	3.4
e.	Control movement of cattle between the various pens.	3.4
f.	Apply medicants in feed and water.	3.4
g.	Identify symptoms of diseases in cattle.	3.4
h.	Spray, dust, and dip cattle.	3.4
i.	Load cattle on trucks.	3.4
j.	Implant cattle with growth stimulants.	3.4
k.	Bed cattle shelters, pens, and trucks.	3.3
l.	Treat disease and injury of cattle.	3.3
m.	Dispose of dead animals as prescribed by law.	3.3
n.	Castrate cattle.	3.2
o.	Brand cattle.	3.2
p.	Determine general condition of cattle.	3.2
q.	Identify symptoms of parasites in cattle.	3.0
r.	Identify symptoms of nutrient deficiency.	2.7
s.	Separate cattle according to size and weight.	2.7
t.	Drive trucks loaded with cattle.	2.3
u.	Fit and show market cattle.	1.7

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* Responses from 35 Feed Lot Hands in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

2.	Feed cattle.	3.0
a.	Fill feed troughs with mechanical equipment.	3.4
b.	Provide proper amount and quality of water.	3.4
c.	Operate feed loading and moving equipment.	3.4
d.	Operate grinding, chopping and mixing equipment for feed.	3.3
e.	Mix feeds and additives.	3.1
f.	Read and understand ingredient composition of feeds as shown on feed tags.	2.8
g.	Provide proper minerals for cattle.	2.8
h.	Balance rations for efficient gain.	1.8
3.	Maintain facilities and equipment.	3.0
a.	Repair and maintain cattle handling equipment.	3.4
b.	Maintain pens and shelters.	3.4
c.	Clean cattle pens and shelters.	3.3
d.	Maintain feeding equipment.	3.1
e.	Construct cattle pens and shelters.	3.0
f.	Maintain feed storage equipment.	2.8
g.	Maintain equipment for growing feed crops.	2.6
h.	Follow drawings and blue prints in constructing buildings and equipment.	2.0
4.	Keep records.	2.0
a.	Keep feed and feeding records.	2.7
b.	Use scales and record weights of cattle and feeds.	2.4
c.	Keep cattle gain records.	1.8
d.	Keep production records.	1.7
e.	Keep expense records.	1.6
5.	Produce feed.	2.4
a.	Harvest feed crops.	2.5
b.	Store feed crops.	2.5
c.	Cultivate feed crops.	2.4
d.	Fertilize feed crops.	2.4
e.	Plant feed crops.	2.3
f.	Irrigate feed crops.	2.2
6.	Perform other duties.	2.6
a.	Read and understand vaccine and medicine labels and directions for use.	3.3
b.	Read pesticide labels and directions for use.	3.2
c.	Store vaccines and medications.	3.0
d.	Store pesticides.	2.7
e.	Butcher and cut-up beef.	0.8

BEEF - VETERINARY ASSISTANT

Job Description:

Cares for cattle under treatment in hospital pens and shelters for disease and injury. Rides pens and pastures on horseback and detects sick and injured cattle. Drives cattle to and from hospital, operates cattle restraining equipment. Keeps hospital equipment and facilities clean and disinfected and sterilizes equipment. Administers medications and treatment under the direction of the veterinarian. Performs duties such as vaccination, castration, dehorning, and marking, using various methods. Keeps and maintains records of vaccinations, disease, and treatments.

Competencies Identified and Validated

N = 39*

	Competencies	Weighted Mean**
1.	Care for and treat cattle.	3.4
a.	Give medications to cattle orally, using the proper equipment.	3.8
b.	Vaccinate cattle for disease control.	3.7
c.	Provide proper feed and water for cattle in hospital.	3.7
d.	Give medications with syringe or hypodermic needle.	3.7
e.	Apply medication to injuries.	3.7
f.	Detect diseased or injured animals.	3.7
g.	Castrate cattle.	3.6
h.	Give medication to cattle through feed and water.	3.6
i.	Identify symptoms of disease and injury.	3.5
j.	Mark cattle by branding, ear marking, and ear tagging.	3.4
k.	Assist veterinarian in surgery.	3.4
l.	Dehorn cattle.	3.3
m.	Clip hair on animals to prepare for surgery or to read identification marks.	3.3
n.	Properly dispose of cattle that have died.	3.2
o.	Move cattle to and from pens, pastures, and hospital.	3.1
p.	Implant cattle with growth stimulant.	3.1

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* Responses from 39 veterinary assistants in 18 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

q.	Spray, dip, and dust cattle.	3.0
r.	Ride horse through pens and pastures.	2.8
2.	Care for and use facilities and equipment.	3.4
a.	Clean, disinfect, and sanitize equipment.	3.7
b.	Clean and disinfect hospital shelters and pens.	3.5
c.	Identify common medical equipment.	3.5
d.	Maintain cattle handling and medical equipment.	3.4
e.	Operate cattle restraining equipment.	3.4
f.	Maintain hospital pens and shelters.	3.2
g.	Develop hospital pens and shelters.	3.0
h.	Operate scales to determine weight.	3.0
3.	Keep records.	3.5
a.	Keep records of vaccinations.	3.7
b.	Keep records of disease treatment.	3.6
c.	Keep records of injuries.	3.5
d.	Keep records of cattle death loss.	3.3
e.	Keep records of costs involved in prevention, treatment, and control of disease and injury to cattle.	3.2
4.	Buy and care for medicants.	3.6
a.	Read directions on vaccines and medicants.	3.9
b.	Read and understand cattle medical terminology.	3.6
c.	Dispose of empty vaccine and medicine containers.	3.6
d.	Buy and maintain stock of vaccines, medicants, supplies, and equipment needed.	3.3

DAIRY FARM MANAGER

Other Titles: Dairy Farmer, Farmer, Dairyman.

Job Description:

The Dairy Farm Manager provides labor and management skills and combines personal abilities with those of others to produce milk efficiently and economically. A person in this occupation must provide and combine skills, technical knowledge, and management to make a profitable dairy production unit. Many dairymen work and manage the home farm on which the family provides most if not all of the labor and management. Other dairy production units are larger and help is employed to provide labor and/or management. Examples of the type of work and management decisions dairy farm unit managers perform are: combining labor, management, land, and capital into a productive unit; deciding which enterprises and the size of enterprise to have; selecting, breeding, feeding, managing, housing, and caring for dairy animals; and producing or purchasing feed for the dairy herd. They must decide where and how to market the production from the herd.

Competencies Identified and Validated

N = 56*

Competencies	Weighted Mean**
1. Keep records.	3.6
a. Maintain breeding records.	3.8
b. Maintain an adequate system of ear tagging, tattooing, etc. for identification purposes.	3.8
c. Keep, analyze, and use production records.	3.7
d. Keep dairy enterprise records and analyze entire dairy operation at least annually.	3.7
e. Keep health records.	3.4
f. Prepare accurate breed registration application forms.	3.2
2. Follow correct milking procedures.	3.6
a. Practice gentle handling of cows.	3.8
b. Stimulate cows correctly for proper milk letdown.	3.7
c. Follow an efficient and regular milking routine.	3.7

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* Responses from 56 Dairy Farm Managers in 12 states. Survey conducted by the Division of Agricultural Education, University of Minnesota, St. Paul, Minnesota 55071.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

d.	Recognize problems of over and under milking.	3.7
e.	Break heifers in properly.	3.5
f.	Milk rapidly.	3.4
g.	Avoid the unusual at milking time.	3.3
3.	Maintain milking system in good condition.	3.4
a.	Use milking equipment properly.	3.6
b.	Check vacuum system and keep operating at correct level.	3.6
c.	Keep teat inflations in proper conditions.	3.6
d.	Use proper cleaning and sanitizing techniques.	3.6
e.	Follow recommended maintenance programs.	3.4
f.	Know how a milking machine works.	3.4
g.	Analyze different chemicals for their effectiveness in cleaning and sanitizing.	2.8
4.	Keep mastitis losses to a minimum.	3.2
a.	Correct situations which cause mastitis to occur.	3.8
b.	Identify mastitis problems and treat mastitic cows.	3.7
c.	Use a teat-dipping program to lessen new incidence of mastitis.	3.4
d.	Use C.M.T. or W.M.T. to identify mastitis problems.	3.0
e.	Milk cows in order-mastitic cows last.	2.9
f.	Estimate losses due to mastitis.	2.8
g.	Use strip cup to spot abnormal milk.	2.8
h.	Use suitable dry cow treatment. #	
5.	Minimize calf losses by following recommended herd health practices.	3.5
a.	Recognize possible calving disorders.	3.7
b.	Assist calf if necessary.	3.6
c.	Follow sanitation program.	3.5
d.	Prepare cow and facilities for parturition.	3.5
e.	Assist cow when calving.	3.3
6.	Identify animals with a health problem.	3.0
a.	Determine when to call veterinarian.	3.7
b.	Recognize symptoms of sick animals.	3.7
c.	Take animal's temperature if illness is suspected.	3.5
d.	Keep health record on animals.	3.4
e.	Know common cattle diseases: causes, treatment, and prevention.	3.3
f.	Identify common parasites.	3.3

Not included on questionnaire but recommended by some experts surveyed.

7.	Treat animals with a health problem.		3.3
	a.	Use antibiotics and medications correctly in treating minor health problems.	3.5
	b.	Vaccinate, drench, spray, dust, or treat animals as directed by veterinarian.	3.5
	c.	Use proper parasite control methods.	3.3
	d.	Maintain equipment and health supply inventory.	3.1
8.	Follow programs to reduce or eliminate health problems.		3.1
	a.	Follow recommended sanitation practices.	3.5
	b.	Follow recommended vaccination program.	3.5
	c.	Dehorn calves.	3.3
	d.	Dip navels of baby calves in iodine.	3.3
	e.	Select and use correct disinfectants as needed.	3.1
	f.	Maintain an insect control program.	3.1
	g.	Trim animals' feet when necessary.	3.0
	h.	Remove extra teats from heifers.	3.0
	i.	Clip the underline, udder, and rear flank of cows in production.	2.5
9.	Utilize basic principles of nutrition.		3.4
	a.	Provide an adequate water supply.	3.8
	b.	Balance ration based on nutrient needs.	3.7
	c.	Determine nutritional requirements of growth.	3.4
	d.	Determine nutritional requirements of production.	3.4
	e.	Determine nutritional requirements of maintenance.	3.4
	f.	Determine nutritional requirements of reproduction.	3.3
	g.	Determine effect of environment on nutritional requirements.	3.1
10.	Use modern technology to determine least cost and most profitable rations.		3.3
	a.	Determine most profitable summer forage program.	3.5
	b.	Use home grown grains wisely.	3.5
	c.	Make efficient use of forage.	3.4
	d.	Select protein supplements which balance home grown feeds at lowest cost per pound of protein.	3.4
	e.	Determine amount and kind of grain to be fed, considering milk prices and input costs.	3.4

f.	Determine optimum feeding systems and schedule.	3.3
g.	Calculate amount of feed needed annually.	3.3
h.	Calculate cost of feeding animals and determine income/feed cost.	3.2
i.	Analyze feed tags.	3.2
j.	Prepare needed mineral mixes.	3.1
k.	Match crop system with livestock needs. #	
11.	Provide adequate amount of nutrients for animals.	3.3
a.	Feed producing cows a balanced ration based on nutritive needs.	3.6
b.	Balance and feed proper ration for dry cows.	3.5
c.	Recognize factors which affect nutritive value and palatability of feed stuffs.	3.4
d.	Determine correct calcium-phosphorus ratio.	3.4
e.	Use crude protein and digestible protein data correctly when balancing rations.	3.4
f.	Understand causes of digestive tract disorders and how to prevent them.	3.2
g.	Use feed additives wisely when needed.	3.2
h.	Analyze the concept of "lead feeding" and challenge feeding.	3.2
i.	Collect representative samples of grain and forage for nutrient analysis.	3.1
j.	Use feed test results in balancing rations.	3.1
k.	Determine amounts of non-protein nitrogen in feedstuffs.	3.0
12.	Feed replacement animals for fast, economical growth.	3.0
a.	Recognize problems associated with over or under feeding.	3.5
b.	Select best calf feeding program (whole milk, sour colostrum, or milk replacer).	3.4
c.	Select or prepare an adequate calf starter.	3.3
d.	Feed correct kind and amount of forage.	3.3
e.	Force feed colostrum within thirty minutes of birth.	3.3
f.	Calculate adequate and economical rations for heifers of different sizes.	3.1
g.	Determine correct weaning time.	3.0
h.	Analyze milk replacers for quality.	2.7
i.	Estimate calf's weight accurately (or weigh animal).	2.4
j.	Evalute once-a-day feeding.	2.1
13.	Manage herd for most profitable reproduction.	3.2
a.	Keep breeding and reproductive records.	3.9
b.	Detect cows in heat and determine best time for breeding.	3.8

Not included on questionnaire but recommended by some experts surveyed.

	c.	Plan and follow constructive breeding programs.	3.8
	d.	Inseminate cow if direct herd service is used.	3.6
	e.	Know the reproductive cycle of dairy animals.	3.5
	f.	Breed cows for twelve month calving intervals.	3.4
	g.	Service heifers with top quality dairy bulls.	3.4
	h.	Determine best time to dry up a cow.	3.4
	i.	Determine causes of infertility.	3.4
	j.	Plan breeding program for even milk production throughout the year or for higher market price periods.	3.3
	k.	Consider the advantages and disadvantages of artificial insemination.	3.3
	l.	Determine age and/or weight at which to artificially inseminate.	3.3
	m.	Identify anatomy of the female reproductive tract and know the function of the tract.	3.2
	n.	Determine losses caused by delay of pregnancy.	3.1
	o.	Check animals for pregnancy.	3.1
	p.	Decide whether to use artificial insemination technician or direct herd service.	2.7
	q.	Estimate the weight of dairy heifers.	2.5
	r.	Know the process of fetal development.	2.3
	s.	Flush animals before breeding to improve conception rate.	1.6
14.		Select breeding and production animals.	3.2
	a.	Select for production and physical traits that are highly heritable.	3.6
	b.	Cull cows that do not meet herd standards.	3.6
	c.	Select sires with high proofs and high repeatability.	3.5
	d.	Evaluate desirable conformation in areas of general appearance, dairy character, body capacity, and mammary system.	3.5
	e.	Use performance and pedigree information in selecting herd replacements.	3.4
	f.	Select most desirable cows from which to raise future replacement animals.	3.2
	g.	Select breeds most appropriate for the dairy farm.	3.1
	h.	Identify parts of the dairy animal and understand their function.	3.1
	i.	Determine how much to pay for replacement animals.	3.1
	j.	Determine losses caused by dairy animals being bred to beef bulls.	2.9
	k.	Determine expected production increases from selecting top quality sires.	2.9

- l. Compare advantages and disadvantages of selecting grade versus purebred cattle. 2.9
- m. Determine best buy per ampule of semen.#
- n. Determine the most effective herd replacement rate to optimize genetic improvement and understand factors influencing it.#
- o. Understand and utilize the principles of effective mating structures.#

15. Apply basic economic principles. 3.3
    - a. Budget available resources (money, land, labor, and capital) into the use of returning the highest final profit. 3.5
    - b. Understand use of capital and its relationship to other farm resources. 3.3
    - c. Fit dairy operation into the whole farm management system as affected by markets and prices. 3.2

16. Obtain and use credit wisely. 3.3
    - a. Obtain a loan with repayment schedule that can be met. 3.7
    - b. Maintain excellent credit rating. 3.7
    - c. Understand loan requirements (repayment terms, legal terms, interest charges, security requirements, etc.). 3.5
    - d. Realize risks and uncertainties of using borrowed capital. 3.5
    - e. Locate sources of financial help in establishing and maintaining a dairy herd. 3.3
    - f. Manage family personal expenses wisely. 3.2
    - g. Figure total "least cost" credit sources for financing the farm business. 3.2
    - h. Consider credit life insurance. 2.4
    - i. Realize the importance of borrowing money and using it as a tool.#

17. Keep accurate and adequate farm records. 3.2
    - a. Keep dairy herd management records (DHIA, health, calving, etc.). 3.7
    - b. Keep income and expense records. 3.6
    - c. Maintain up-to-date depreciation schedule. 3.3
    - d. Determine net farm income. 3.2
    - e. Take an accurate inventory. 3.2
    - f. Prepare a personal net worth statement. 2.8
    - g. Plan for and compute income taxes. 2.8

# Not included on questionnaire but recommended by some experts surveyed.

18.	Analyze farming enterprises annually.	3.1
	a. Analyze dairy operations annually.	3.3
	b. Compare dairy farm performance with individual goals and similar farming operations.	3.2
	c. Prepare income statement (profit and loss from current year's operation).	3.0
	d. Calculate rate of return/$ invested, management return, ratio of assets to liabilities, ratio of gross farm income to liabilities.	2.9
19.	Project or plan for the future.	2.9
	a. Determine family goals for the future.	3.1
	b. Plan credit needs for one year with adequate operating resources.	3.0
	c. Plan for use of intermediate and long term credit.	2.9
	d. Calculate total amount of credit required.	2.9
	e. Prepare a budget for the dairy operation (one year).	2.8
	f. Develop a cash flow projection on the dairy operation (3 - 5 years).	2.5
20.	Provide adequate and economical milk handling system.	3.3
	a. Operate milking and economical milk handling system.	3.3
	b. Maintain milking equipment properly.	3.7
	c. Supply adequate and stable vacuum for milking.	3.7
	d. Maintain proper sanitation program.	3.6
	e. Produce milk that meets or surpasses quality standards.	3.6
	f. Operate equipment to properly cool milk.	3.6
	g. Determine best system for their situation.	3.1
	h. Select milking equipment.	3.1
	i. Compare pipeline systems.	3.1
	j. Design milkhouse arrangement for efficient work routine.	2.9
	k. Compare and select milk cooling system.	2.8
	l. Determine if a pipeline or transfer system is needed.	2.6
21.	Provide adequate and economical housing for dairy animals.	3.1
	a. Provide adequate ventilation through fans, intakes, etc.	3.5
	b. Maintain adequate maternity and hospital area.	3.4
	c. Maintain good environment for dairy animals.	3.4

d.	Group calves according to size after weaning.	3.2
e.	Determine ventilation needs of dairy building.	3.2
f.	Keep housing in good repair.	3.2
g.	Use individual calf pens for baby calves.	3.1
h.	Determine housing requirements for animals of different ages.	3.1
i.	Provide sufficient and low cost housing for dairy replacements.	3.1
j.	Develop plans for new dairy facilities.	2.9
k.	Lay out plans for improving existing facility.	2.9
l.	Analyze different systems of dairy housing.	2.8
22.	Provide adequate and economical materials handling equipment.	3.0
a.	Make necessary improvements in manure handling system.	3.4
b.	Plan labor saving chore routine.	3.3
c.	Provide manure handling system.	3.0
d.	Evaluate present manure handling system.	3.0
e.	Calculate amount of storage needed annually.	2.9
f.	Operate and maintain materials handling equipment.	2.9
g.	Provide additional storage as needed.	2.9
h.	Compare methods of manure disposal.	2.8
i.	Determine best feed handling system.	2.8
j.	Compare feed handling systems.	2.6
23.	Determine if and when additional labor should be hired.	3.1
a.	Evaluate own ability to manage labor.	3.3
b.	Recognize when time should be spent on labor management rather than actual labor.	3.2
c.	Figure costs and returns of additional labor in dairy herd expansion.	3.0
d.	Compute changes in labor requirements as size of enterprises change.	2.9
24.	Plan for labor needs.	3.1
a.	Anticipate and prepare for peak work loads in the farm work schedule.	3.4
b.	Assign appropriate priorities to the farm work to be done.	3.4
c.	Plan the daily and weekly work schedule in advance.	3.1
d.	Calculate relative amounts and seasonal distribution of the labor requirements for the entire farm operation by enterprise.	3.0
e.	Plan for the cropping and livestock program to distribute the labor load.	3.0
f.	Know the availability and cost of hired labor during different times of the year.	2.8

	g.	Determine size of operation needed to employ full time help.	2.8
25.		Recruit and hire additional labor.	3.0
	a.	Comply with employers legal responsibilities (Social Security withholding taxes, OSHA., insurance, etc.).	3.4
	b.	Train employees to perform their job adequately.	3.3
	c.	Lead but do not needlessly dominate employees.	3.3
	d.	Compensate employees for work done.	3.3
	e.	Give instructions to employees quickly and clearly.	3.2
	f.	Make definite agreements with hired workers about working conditions.	3.1
	g.	Assign jobs to employees according to their ability and interest.	3.1
	h.	Encourage employees to develop greater abilities.	3.0
	i.	Evalute prospective employees.	3.0
	j.	Meet personal needs of hired workers (housing, recreation, personal goals, etc.).	3.0
26.		Know the dairy industry.	2.6
	a.	Develop production goals for dairy herd.	3.7
	b.	Interpret dairy product standards set by local milk market.	2.9
	c.	Determine how dairy product prices are affected by Federal price supports and marketing orders.	2.7
	d.	Analyze trends in dairy product demand as they affect local markets for producer's milk.	2.4
	e.	Recognize trends in livestock production for local area, state, and nation.	2.4
	f.	Determine how the dairy market is influenced by the export-import system.	2.4
	g.	Identify the importance of the livestock industry and particularly the dairy industry in the local community, state, and nation.	2.4
	h.	Determine factors affecting the location of major livestock enterprises in the state and nation.	2.1
	i.	Determine how the future of dairy prices will be affected by dairy substitutes.	2.0

HORSE PRODUCTION EMPLOYEE

Other Titles: Horse Farm Employee, Horse Rancher, Horse Producer, Livestock Farm Employee, Rancher.

Job Description:

Ground trains the horse and trains the horse to drive and/or ride applying handling techniques to handle the horse safely and cares for the horse after work. Compares methods of breeding, plans and applies a breeding program. Applies sanitation and health practices, recognizes symptoms of common equine diseases and applies a parasite and disease control program by developing a veterinary client relationship. Prepares and exhibits the horse in competition. Grooms the horse caring for the horse's limbs and hooves. Calculates nutritive requirements, evaluates sources of nutrients, prepares feed rations, and feeds horses. Improves and uses pastures. Develops a horse farm record system with budgets and insurance plan to compute taxes and marks the horse for identification. Buys and sells horses comparing and contrasting marketing methods, selects market, and determines market value and financing method. Identifies major breeds and types of horses, and determines age, weight and height to select and judge horses. Installs, maintains, and repairs horse farm buildings, water systems, electrical systems, and training facilities. Evaluates and constructs horse farm buildings and applies environmental control practices. Builds fences and recommends requirements for stalls, hallway or alleyway and tackroom. Practices fire prevention methods and follows proper procedures during fire.

Competencies Identified and Validated

N = 46*

Competencies	Weighted Mean**
1. Classify and select horses.	2.6
a. Select horses.	2.9
b. Judge horses.	2.7
c. Determine age, weight, and height.	2.0
d. Identify the major breeds of horses by classes and types.	2.0
2. Feed horses.	3.1
a. Feed horses.	3.3

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* Responses from 46 Horse Producers in 9 states. Survey conducted by the Department of Agricultural Education, Texas A & M University, College Station, Texas 77843.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	b.	Calculate nutritive requirements of horses.	3.0
	c.	Evaluate sources of feed nutrients.	3.0
	d.	Prepare feed rations.	2.9
3.		Manage pastures.	2.7
	a.	Use pasture.	2.7
	b.	Improve pastures.	2.6
4.		Control parasites, diseases, and injuries.	3.4
	a.	Recognize symptoms of common equine diseases.	3.6
	b.	Apply sanitation and health practices.	3.4
	c.	Apply parasite and disease control program.	3.3
	d.	Develop veterinary-client relationship.	3.1
5.		Install, maintain, and repair horse farm buildings, equipment, and training facilities.	2.7
	a.	Practice fire prevention methods.	3.6
	b.	Discuss procedures to follow during fire.	3.4
	c.	Build fences.	3.1
	d.	Select, maintain, and repair horse equipment.	2.8
	e.	Evaluate horse farm buildings.	2.6
	f.	Recommend requirements for a stall, hallway or alleyway, and tack room.	2.5
	g.	Construct farm buildings.	2.4
	h.	Apply environmental control practices.	2.3
	i.	Plan, install, maintain, and repair a water system for horse farm buildings.	2.3
	j.	Install, maintain, and repair electrical wiring and demonstrate electrical safety.	1.7
6.		Groom and leg and hoof care for the horse.	3.1
	a.	Groom the horse.	3.1
	b.	Care for the horse's limbs and hooves.	3.1
7.		Train and handle horses.	3.4
	a.	Handle horses safely.	3.9
	b.	Care for horse after work.	3.6
	c.	Ground trains the horse.	3.3
	d.	Apply handling techniques according to age, size, sex, and temperament.	3.3
	e.	Train the horses to drive and/or ride.	2.8
8.		Exhibit the horse.	3.2
	a.	Prepare for competition.	3.2
9.		Breed horses.	3.3
	a.	Apply a breeding program.	3.6
	b.	Plan a breeding program.	3.4
	c.	Compare methods of breeding horses.	2.9

10.	Buy and sell horses.	2.5
	a. Determine market value.	2.8
	b. Compare and contrast methods of marketing horses.	2.5
	c. Select markets.	2.4
	d. Determine financing methods.	2.4
11.	Maintain records required for horse production.	2.6
	a. Develop a record keeping system peculiar to the horse farm.	2.8
	b. Mark the horse for identification.	2.7
	c. Compute taxes peculiar to the horse farm.	2.6
	d. Develop an insurance plan for horse farm.	2.5
	e. Develop a budget for the horse farm.	2.4

BROILER GROWER

Other Titles: Chicken Farmer, Broiler Producer,
Chicken Rancher.

Job Description:

Broiler Growers provide daily care for flocks of young chickens, from hatching until about eight weeks of age. They must maintain the proper environment for the birds and see that they have plenty of feed and water. Broiler Growers usually live near their work and set their own work schedule. The chicks, however, must be looked after seven days a week. Broiler Growers are usually self-employed and grow broilers under contract with a broiler contractor which provide them with baby chicks, feed, medication, supervision, and labor and equipment for catching and hauling the broilers to market.

Competencies Identified and Validated

N = 32*

Competencies	Weighted Mean**
1. Provide housing, equipment, and supplies.	4.0
a. Provide housing.	4.0
b. Provide feeding equipment.	4.0
c. Provide watering equipment.	4.0
d. Provide brooding equipment.	3.9
e. Provide adequate water supply.	3.7
f. Purchase needed supplies.	3.4
g. Supply litter.	3.3
2. Secure contract to grow broilers.	3.8
3. Prepare house for baby chicks.	3.9
a. Put out feed and water.	3.9
b. Light and adjust brooders.	3.9
c. Spread litter.	3.7
d. Install brooder guard.	2.9
4. Maintain correct environment.	3.7
a. Maintain correct brooder temperature.	3.7
b. Provide proper ventilation.	3.7
c. Maintain correct house temperature.	3.5
d. Provide proper lighting.	3.3
e. Prevent excessive humidity.	3.0

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* Responses from 32 Broiler Growers in 9 states. Survey conducted by Department of Agricultural Education, University of Georgia, Athens, Georgia 30602.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

5.	Maintain sanitation.		3.8
	a.	Dispose of dead birds.	3.8
	b.	Clean drinkers.	3.4
	c.	Remove all litter when needed.	3.3
	d.	Remove wet litter from house.	3.2
6.	Maintain grounds around buildings.		3.2
	a.	Maintain driveways.	3.6
	b.	Maintain drainage ditches.	3.3
	c.	Mow grass and weeds.	3.0
7.	Control pests of broilers.		3.5
	a.	Administer vaccines and other medication.	3.8
	b.	Consider human safety in administering drugs.	3.4
	c.	Control insect pests of broilers.	3.3
	d.	Recognize signs of rodents.	3.3
	e.	Adminster rodent control measures.	3.3
	f.	Recognize disease symptoms.	3.2
	g.	Prevent wild birds from entering house.	3.2
	h.	Recognize insect pests of broilers.	3.1
8.	Operate equipment and machinery.		3.7
	a.	Adjust equipment for maximum efficiency.	3.5
	b.	Recognize malfunction in equipment.	3.4
	c.	Service machinery and equipment according to operator's manual.	3.2
	d.	Use safety standards relating to the operation of a particular piece of equipment.	3.2
	e.	Prepare machinery and equipment for storage.	2.9
9.	Maintain buildings and equipment.		3.6
	a.	Maintain watering equipment.	3.8
	b.	Maintain brooding equipment.	3.8
	c.	Maintain electrical system.	3.7
	d.	Maintain plumbing.	3.7
	e.	Maintain feeding equipment.	3.7
	f.	Maintain curtains and curtain controls.	3.5
	g.	Repair buildings.	3.3
	h.	Maintain tractor and tractor equipment.	2.9
	i.	Paint buildings.	2.3
10.	Prepare for removal of broilers.		3.7
	a.	Dismantle and move equipment out of way of catching crew.	3.6
	b.	Prevent chickens from piling up and smothering while catching crew is working.	2.7
11.	Keep records.		3.3
	a.	Record chick mortality daily.	3.3
	b.	Keep management records.	3.0
	c.	Keep records on equipment servicing and maintenance.	2.5

EGG PRODUCER

Other Titles: Flock Manager, Chicken Farmer.

Job Description:

Egg Producers are persons who provide daily care for a flock of laying hens. They must maintain the proper environment for the hens and see that they have plenty of feed and water. They are responsible for gathering and properly caring for the eggs. Egg Producers usually live near their work and set their own work schedule. The hens and eggs, however, must be looked after seven days a week. The Egg Producer is usually self-employed, however, they may provide their own financing and management; or they may produce the eggs under a contract. If they have a contract, the contractor usually provides the starting pullets, the feed, medication, and supervision. The Egg Producer must furnish the needed labor, equipment, and daily management.

Competencies Identified and Validated

N = 30*

Competencies		Weighted Mean**
1.	Provide financing.	3.5
2.	Provide housing, equipment, and supplies.	3.7
	a. Provide watering equipment.	3.9
	b. Provide adequate water supply.	3.9
	c. Provide housing.	3.7
	d. Provide feeding equipment.	3.6
	e. Purchase needed supplies.	3.2
	f. Supply litter.	3.0
3.	Secure contract to produce eggs.	3.1
4.	Prepare house for started pullets.	3.4
	a. Provide feed and water.	3.5
	b. Spread litter, if floor house.	3.3
5.	Maintain correct environment.	3.4
	a. Provide proper lighting.	3.7
	b. Provide proper ventilation.	3.5
	c. Maintain correct house temperature.	3.4
	d. Control odors.	3.3
	e. Control flies.	3.3

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* Responses from 30 Egg Producers in 10 states. Survey conducted by Department of Agricultural Education, University of Georgia, Athens, Georgia 30602.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

6.	Maintain sanitation.	3.7
a.	Dispose of dead birds.	3.6
b.	Clean drinkers.	3.5
c.	Dispose of manure.	3.5
d.	Remove all litter when needed.	3.4
e.	Remove wet litter from house.	3.3
7.	Care for eggs.	3.4
a.	Gather eggs.	3.8
b.	Refrigerate eggs.	3.8
c.	Case or rack eggs.	3.5
d.	Remove cracked eggs and leakers.	3.0
e.	Wash soiled eggs.	2.9
8.	Maintain grounds around buildings.	3.1
a.	Mow grass and weeds.	3.0
b.	Maintain driveways.	3.0
c.	Maintain drainage ditches.	2.9
9.	Control pests of hens.	3.7
a.	Recognize disease symptoms.	3.5
b.	Control insect pests of hens.	3.5
c.	Administer vaccines and other medicines.	3.4
d.	Recognize insect pests of hens.	3.3
e.	Recognize signs of rodents.	3.2
f.	Administer rodent control measures.	3.2
g.	Prevent wild birds from entering house.	3.2
h.	Consider human safety in administering drugs.	3.3
10.	Operate equipment and machinery.	3.3
a.	Service machinery and equipment according to operator's manual.	3.2
b.	Use safety standards relating to the operation of a particular piece of equipment.	3.2
c.	Adjust equipment for maximum efficiency.	3.3
d.	Recognize malfunction in equipment.	3.3
e.	Prepare machinery and equipment for storage.	3.0
11.	Maintain buildings and equipment.	3.2
a.	Maintain watering equipment.	3.5
b.	Maintain feeding equipment.	3.5
c.	Maintain plumbing.	3.4
d.	Maintain electrical system.	3.4
e.	Maintain egg gathering equipment.	3.4
f.	Maintain curtains and curtain controls.	3.3
g.	Maintain tractor and tractor equipment.	2.9
h.	Repair buildings.	2.9
i.	Paint buildings.	2.6

12.	Prepare for removal of hens.	3.1
a.	Prevent hens from piling up and smothering while catching crew is working.	3.2
b.	Dismantle and move equipment out of way of catching crew.	3.0
13.	Keep records.	3.7
a.	Keep production records.	3.8
b.	Record hen mortality daily.	3.6
c.	Keep management records.	3.5
d.	Keep records on equipment servicing and maintenance.	3.2

TURKEY GROWER

Other Titles: Turkey Farmer, Turkey Producer.

Job Description:

Turkey Growers are persons who provide daily care for a flock of young turkeys from hatching to market. They must maintain the proper environment for the birds and see that they have plenty of feed and water. Turkey Growers usually live near their work and set their own work schedules. The birds, however, must be looked after seven days a week. Turkey Growers usually are self-employed and either procure the poults and grow the birds to market age providing their own financing, or they secure a contract to grow the birds out to market age. With a contract the contractor usually furnishes the poults, feed, medication, supervision, and labor and equipment to haul the birds to market. Growers usually furnish housing, equipment, labor, and daily management.

Competencies Identified and Validated

N = 33*

Competencies	Weighted Mean**
1. Provide financing.	3.5
2. Provide housing, equipment, and supplies.	3.7
a. Provide housing.	3.8
b. Provide feeding equipment.	3.8
c. Provide watering equipment.	3.8
d. Provide brooding equipment.	3.8
e. Provide adequate water supply.	3.8
f. Purchase needed supplies.	3.3
g. Supply litter.	3.2
h. Provide feed.	3.1
3. Secure contract to grow turkeys or procure poults.	3.5
4. Prepare house for poults.	3.9
a. Light and adjust brooders.	3.9
b. Spread litter.	3.8
c. Install brooder guard.	3.8
d. Put out feed and water.	3.8
5. Maintain correct environment.	4.0

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* Responses from 33 Turkey Growers in 10 states. Survey conducted by Department of Agricultural Education, University of Georgia, Athens, Georgia 30602.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	a. Maintain correct house temperature.	3.8
	b. Maintain correct brooder temperature.	3.8
	c. Provide proper ventilation.	3.8
	d. Prevent excessive humidity.	3.6
	e. Provide proper lighting.	3.4
6.	Maintain sanitation.	3.9
	a. Dispose of dead birds.	3.9
	b. Clean drinkers.	3.8
	c. Remove all litter when needed.	3.5
	d. Remove wet litter from house.	3.4
7.	Maintain grounds around buildings.	3.1
	a. Mow grass and weeds.	3.1
	b. Maintain driveways.	3.1
	c. Maintain drainage ditches.	3.1
8.	Control pests of turkeys.	3.6
	a. Consider human safety in administering drugs.	3.6
	b. Recognize disease symptoms.	3.4
	c. Administer rodent control measures.	3.4
	d. Prevent wild birds from entering house.	3.4
	e. Control insect pests of turkeys.	3.3
	f. Administer vaccines and other medicines.	3.2
	g. Recognize signs of rodents.	3.2
	h. Recognize insect pests of turkeys.	3.1
9.	Operate equipment and machinery.	3.6
	a. Adjust equipment for maximum efficiency.	3.6
	b. Use safety standards relating to the operation of a particular piece of equipment.	3.4
	c. Recognize malfunction in equipment.	3.4
	d. Service machinery and equipment according to operator's manual.	3.2
	e. Prepare machinery and equipment for storage.	3.1
10.	Maintain buildings and equipment.	3.8
	a. Maintain feeding equipment.	3.6
	b. Maintain watering equipment.	3.6
	c. Maintain brooding equipment.	3.6
	d. Maintain curtains and curtain controls.	3.5
	e. Maintain plumbing.	3.4
	f. Maintain electrical system.	3.4
	g. Maintain tractor and tractor equipment.	3.0
	h. Repair buildings.	2.9
	i. Paint buildings.	2.3
11.	Provide range for turkeys.	3.6
	a. Control varmints.	3.4
	b. Move turkeys to range.	3.3
	c. Construct and maintain fence.	3.3

12.	Market turkeys.	2.6
	a. Locate market for birds.	2.8
	b. Load birds for hauling.	2.7
	c. Transport birds to market.	1.9
13.	Keep records.	3.7
	a. Record poult mortality daily.	3.7
	b. Keep management records.	3.3
	c. Keep records on equipment servicing and maintenance.	2.7

SHEEP RANCHER

Other Titles: Sheep Farmer, Sheep Breeder, Sheep Producer, Wool Grower.

Job Description:

Sheep Ranchers are responsible for the success or failure of the sheep production enterprise as they make all the critical management decisions. These decisions include those in marketing, breeding, shearing, feed production and feeding. They supervise all labor and operations of the sheep ranch. They keep records and develop health and predator control programs. They construct facilities and equipment using hand and power tools. They operate and maintain power machinery and equipment. They perform legislative and service activities.

Competencies Identified and Validated

N = 41*

Competencies	Weighted Mean**
1. Management decisions.	3.3
a. Determine the best type of feeding program.	3.7
b. Plan efficient utilization of feed, water, and storage facilities.	3.6
c. Determine long and short term goals of the operation.	3.6
d. Plan the efficient utilization of all available resources, such as water, timber, and range land.	3.5
e. Plan the efficient utilization and layout of pens and shelter.	3.4
f. Balance rations for lambs on feed.	3.4
g. Determine the value of land to rent or buy.	3.3
h. Insure timeliness of all operations.	3.3
i. Determine cleaning and sanitation requirements for the operation.	3.3
j. Arrange for transportation of sheep.	3.2
k. Determine when to use professional services.	3.2
l. Plan effective use of equipment.	3.2
m. Determine transportation needs.	3.1
n. Read and interpret various lease and grazing requirements.	3.1
o. Determine safety precautions to be observed.	3.0
p. Plan the insurance program for the operation.	3.0
q. Determine when to move camp.	2.6
2. Maintain and use hand and power tools.	3.2
a. Use power tools safely.	3.6

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* Responses from 41 National Wool Growers and Sheep Producers in 27 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

b.	Use hand tools safely.	3.5
c.	Instruct employees on safe use of hand and power tools.	3.5
d.	Read and interpret instructions on power tool operation.	3.4
e.	Identify tools.	3.3
f.	Clean tools.	3.1
g.	Adjust power tools.	3.1
h.	Sharpen tools.	3.0
i.	Recondition tools.	2.6
3.	Feed and feeding.	3.2
a.	Calculate cost of rations.	3.6
b.	Develop and balance rations.	3.6
c.	Identify spoiled feed.	3.6
d.	Determine when and what supplemental feed must be fed.	3.6
e.	Determine proper amounts to feed various sheep.	3.6
f.	Feed sheep.	3.5
g.	Determine water requirements for flock.	3.5
h.	Determine nutrient requirements.	3.5
i.	Distribute salt and mineral blocks.	3.4
j.	Calculate feed efficiency.	3.4
k.	Identify feeds.	3.4
l.	Clean and fill waterers.	3.4
m.	Determine equipment needed to feed sheep.	3.4
n.	Identify nutrient deficiencies in sheep.	3.4
o.	Feed lambs.	3.4
p.	Flush ewes and rams.	3.4
q.	Wean lambs.	3.4
r.	Determine relative nutrient value of feedstuffs.	3.3
s.	Interpret feed analysis reports.	3.3
t.	Interpret feed tags and labels.	3.3
u.	Check ewes' milk supply.	3.3
v.	Determine when lambs may be started on roughages and grain.	3.3
w.	Feed grazing sheep supplemental rations.	3.0
x.	Mix feed.	2.7
y.	Break up mineral salt in troughs or boxes.	2.4
4.	Marketing (buying).	3.2
a.	Select and purchase desirable breeding stock.	3.8
b.	Buy feed at the best price.	3.7
c.	Select and purchase drugs and veterinary supplies.	3.4
d.	Buy farm equipment and machinery.	3.3
e.	Buy supplies and materials.	3.2
f.	Buy parts and supplies for machinery.	3.1
g.	Select and purchase desirable lambs.	3.0
h.	Develop bill of materials.	3.0
i.	Buy groceries for herders and lambing camp help.	2.1

5.	Machinery and equipment operation, maintenance, and repair.	3.2
a.	Grease and oil equipment.	3.4
b.	Develop a maintenance schedule for vehicles and equipment.	3.4
c.	Read and interpret operator's manual or assembly diagrams.	3.3
d.	Add coolant to cooling systems.	3.3
e.	Inspect equipment for operating defects.	3.3
f.	Operate a tractor.	3.3
g.	Change oil and oil filters.	3.3
h.	Inflate tires.	3.3
i.	Install and adjust belts or chains.	3.2
j.	Install and service battery.	3.2
k.	Operate a truck loaded with sheep.	3.2
l.	Clean debris and dirt from vehicles.	3.1
m.	Identify hardware.	3.1
n.	Repack bearings.	2.9
o.	Replace and adjust spark plugs.	2.9
p.	Adjust carburetors.	2.5
6.	Health program development.	3.2
a.	Identify symptoms of common diseases.	3.8
b.	Prevent common diseases and parasites.	3.7
c.	Identify symptoms of common parasites.	3.7
d.	Interpret labels on medicines, drugs, and pesticide containers.	3.7
e.	Isolate sheep with transmissible diseases.	3.6
f.	Determine when to rotate pastures to control parasites.	3.6
g.	Identify injuries on sheep.	3.5
h.	Develop a vaccination program.	3.5
i.	Determine amounts of medicines or materials needed for specific situations.	3.5
j.	Identify and correct sanitation problems.	3.5
k.	Inspect sheep for defects.	3.4
l.	Calculate the cost of various health programs.	3.4
m.	Remove manure from quarters or pens.	3.3
n.	Vaccinate sheep.	3.3
o.	Identify poisonous plants.	3.3
p.	Worm sheep.	3.3
q.	Drench sheep.	3.3
r.	Isolate newly purchased animals.	3.2
s.	Store pesticides, vaccines and medicines.	3.2
t.	Remove or bury dead animals.	3.2
u.	Check rams for epididymitis.	3.2
v.	Disinfect buildings and equipment.	3.1
w.	Supply medication through feed and water.	3.0
x.	Precondition animals prior to shipment.	3.0
y.	Pill sheep.	3.0
z.	Treat nicked or cut sheep.	3.0
aa.	Spread manure.	2.9
bb.	Spray sheep.	2.8

cc.	Grub out or otherwise remove poisonous plants.	2.7
dd.	Bathe sheep in foot bath.	2.6
ee.	Take temperature.	2.5
ff.	Dip sheep.	2.4
gg.	Make worm egg counts.	2.2
hh.	Take a blood sample.	1.7
7.	Record keeping.	3.1
a.	Keep purchases and sales records.	3.7
b.	Keep financial records.	3.6
c.	Count sheep.	3.6
d.	Keep livestock and equipment inventories.	3.5
e.	Keep personal records.	3.5
f.	Determine efficiency of production.	3.4
g.	Determine market costs.	3.4
h.	Keep records of vaccinations, disease treatment, and death losses.	3.4
i.	Maintain production records.	3.4
j.	Determine net worth of the operation.	3.3
k.	Maintain records of predator and other death losses.	3.3
l.	Assist accountant in preparing tax return.	3.3
m.	Set up and maintain record keeping systems.	3.3
n.	Keep record of cost involved in disease and injury prevention and treatment.	3.3
o.	Maintain records of private and government leases and permits.	3.3
p.	Prepare a budget.	3.2
q.	Execute responsibility for payroll and withholding.	3.2
r.	Keep personnel records.	3.2
s.	Use scales and record weights of crops, feed, or sheep.	3.2
t.	Figure depreciation.	3.1
u.	Maintain equipment maintenance records.	3.0
v.	Determine rate of gain.	3.0
w.	Maintain vehicle records.	3.0
x.	Maintain breeding records.	3.0
y.	Interpret sire summaries and production records.	2.9
z.	Interpret progeny testing records.	2.7
aa.	Record information of individual ewe performance.	2.7
bb.	Maintain official production records.	2.6
cc.	Register breeding stock.	2.6
dd.	Interpret pedigrees.	2.5
8.	Judging and selection.	3.1
a.	Cull breeding stock.	3.7
b.	Determine which breed(s) or type of sheep is best suited to the local situation.	3.6
c.	Identify defects in sheep.	3.5
d.	Determine condition of a flock or pen of sheep.	3.5
e.	Determine age.	3.5
f.	Determine condition of teeth.	3.4

g.	Remove incompatible sheep from flock.	3.3
h.	Attend breeding stock sales and purchase stock.	3.2
i.	Use production records as a selection tool.	3.2
j.	Sort sheep according to size, weight, sex and condition.	3.0
k.	Identify various breeds.	3.0
l.	Identify points or traits which breed associations discriminate against.	2.9
m.	Identify body parts.	2.9
n.	Assist youth in selecting project animals or foundation stock.	2.5
o.	Judge local fairs or shows.	1.7
9.	Breeding tasks.	3.1
a.	Determine when to start and stop breeding season.	3.7
b.	Determine ratio of rams per 100 ewes.	3.5
c.	Turn rams in with ewes.	3.5
d.	Detect ewes in heat.	1.9
10.	Feed production.	3.1
a.	Determine range or pasture quality and quantity.	3.7
b.	Determine the capacity of a given amount of pasture or rangeland.	3.6
c.	Control weeds or non-forage plants in pasture or rangeland.	3.2
d.	Store feed crops.	3.2
e.	Plant feed crops.	3.0
f.	Fertilize feed crops.	3.0
g.	Harvest feed crops.	3.0
h.	Cultivate feed crops.	2.9
i.	Irrigate feed crops.	2.3
11.	Supervision of workers and labor management.	3.0
a.	Plan work schedules.	3.4
b.	Determine labor needed and prepare for peak work loads.	3.4
c.	Train employees.	3.3
d.	Hire and fire employees.	3.3
e.	Suggest to workers improvements in methods of accomplishing work.	3.2
f.	Assign workers according to skills and interests.	3.1
g.	Judge prospective employee qualifications.	3.1
h.	Develop harmonious relationships with workers.	3.0
i.	Negotiate specific arrangements with employees as to wages, hours, fringe benefits, etc.	3.0
j.	Observe employee compliance to safety precautions.	3.0
k.	Determine which regulatory laws concerning employees, apply to the operation.	2.7
l.	Inform employees of benefits and responsibilities under regulatory laws.	2.6

	m.	Develop workers' training programs.	2.2
	n.	Maintain liason with labor organizations or agencies.	2.0
12.		Marketing (selling).	2.8
	a.	Determine when to market sheep.	3.7
	b.	Determine where to market sheep.	3.5
	c.	Properly load sheep.	3.4
	d.	Interpret market reports.	3.3
	e.	Classify or grade sheep for marketing.	3.2
	f.	Compare costs of various marketing alternatives.	3.2
	g.	Select a wool market.	3.2
	h.	Weigh sheep.	3.1
	i.	Evaluate influence of market grade on net return.	3.1
	j.	Estimate weight of lambs.	3.1
	k.	Sort lambs by weight and grade.	2.9
	l.	Calculate shrinkage of sheep.	2.9
	m.	Prepare carriers for hauling.	2.8
	n.	Consign breeding stock to sales.	2.6
	o.	Calculate yield of wool.	2.6
	p.	Prepare advertisement for sale of animals.	2.4
	q.	Calculate dressing percent.	2.3
	r.	Conduct a sale.	2.2
	s.	Grade wool.	2.1
	t.	Take pictures of stock for advertising purposes.	1.8
	u.	Identify wholesale and retail cuts.	1.7
13.		Construction and repair.	2.8
	a.	Construct or repair permanent fences.	3.3
	b.	Construct or repair temporary fences.	3.3
	c.	Construct or repair feed racks, bunks, troughs, etc.	3.3
	d.	Determine the costs of construction and repairs.	3.3
	e.	Construct or repair and hang gates and doors.	3.1
	f.	Construct lambing pens (jugs).	3.1
	g.	Replace valves in water system.	3.0
	h.	Replace fuses.	3.0
	i.	Repair leaks in roof of buildings.	3.0
	j.	Replace belts and pulleys.	3.0
	k.	Repair faucets.	2.9
	l.	Develop a working drawing of a structure to be built.	2.8
	m.	Replace water pipe.	2.8
	n.	Repair electrical cords and broken wires.	2.8
	o.	Replace electrical switches.	2.7
	p.	Replace window pane.	2.6
	q.	Build and remove concrete forms.	2.5
	r.	Wire simple electrical circuits.	2.4
	s.	Construct a windbreak.	2.4
	t.	Construct a foot bath.	2.4
	u.	Repair metal structures with arc welder.	2.4
	v.	Read and interpret blueprints.	2.4
	w.	Repair metal structures with oxyacetylene welder.	2.3

x.	Mix, pour, finish and cure concrete.	2.1
y.	Construct a major structure (barn, building or shelter).	2.1
z.	Repair sprinklers.	2.0
aa.	Lay concrete blocks.	1.7
14.	Technical management skills.	2.8
a.	Dock lambs.	3.6
b.	Castrate lambs.	3.4
c.	Mark, notch, tag, or tattoo ears.	3.4
d.	Paint brands.	3.3
e.	Catch mature sheep with hands or crook.	3.1
f.	Trim feet.	3.0
g.	Restrain mature sheep.	2.6
h.	Exercise sheep.	2.6
i.	Care for sheep at sales or shows.	2.1
j.	Fit and show breeding sheep.	2.0
k.	Fit and show market lambs.	2.0
l.	Move camp.	1.8
15.	Predator control.	2.7
a.	Identify predator losses.	3.4
b.	Shoot predators.	3.2
c.	Develop a predator control program based on habits and life cycles of various predators.	3.0
d.	Properly use baits and poisons.	2.8
e.	Employ a trapper and direct his activities.	2.6
f.	Dispose of predator carcasses.	2.5
g.	Set traps.	2.3
h.	Construct predator proof enclosures.	2.2
16.	Lambing tasks.	2.7
a.	Assist ewes in lambing.	3.5
b.	Graft orphan lambs.	3.4
c.	Revive chilled lambs.	3.3
d.	Identify signs of approaching birth.	3.3
e.	Assist lambs in first nursing.	3.3
f.	Remove and dispose of dead lambs.	3.0
g.	Care for orphan lambs.	2.9
h.	Identify due dates of pregnant ewes.	2.8
i.	Isolate ewes for lambing.	2.7
j.	Paint newborn lamb's navel with iodine.	2.7
k.	Bed down pregnant ewes.	2.6
l.	Milk ewes.	2.6
m.	Administer artificial respiration to newborn lambs.	2.6
n.	Regulate temperature in lambing quarters.	2.3
o.	Remove afterbirth.	2.3
p.	Use lamb forceps.	1.7
q.	Skin dead lambs.	1.6

17.	Shearing.		2.6
	a.	Properly store wool.	3.5
	b.	Determine when to shear sheep.	3.5
	c.	Contract with wool shearing firm.	3.1
	d.	Clip ram for breeding.	2.8
	e.	Tag ewes prior to lambing or breeding.	2.8
	f.	Haul wool to market.	2.8
	g.	Bundle and tie fleece.	2.7
	h.	Supervise shearing crew.	2.7
	i.	Shear wool with power driven clippers.	2.6
	j.	Pack wool.	2.4
	k.	Arrange for core testing of wool.	2.3
	l.	Sharpen and adjust shears.	2.1
	m.	Set up and test shearing equipment.	1.8
	n.	Repair clippers.	1.7
18.	Legislative and service activities.		2.6
	a.	Attend various association meetings or conventions.	2.9
	b.	Attend field days or workshops conducted by governmental agencies or breed associations.	2.9
	c.	Correspond with legislators.	2.7
	d.	Interpret various bills.	2.7
	e.	Develop resolutions for legislators.	2.6
	f.	Testify before hearings.	2.5
	g.	Conduct field days or judging contest for local youth groups or other breeders.	2.3
	h.	Attend adult classes or young farmer meetings.	2.3
	i.	Attend local service club meetings.	2.2
19.	Sheep herding.		2.5
	a.	Guard flock against predators.	3.0
	b.	Tend flock grazing on pasture or range.	2.6
	c.	Tend flock on trail or highway.	2.5
	d.	Work sheep dogs.	2.5
	e.	Train sheep dogs.	2.2
	f.	Care for horses.	2.1
20.	Slaughtering.		1.6
	a.	Skin sheep.	1.7
	b.	Slaughter sheep.	1.6
	c.	Dress cut sheep.	1.6

SHEEP RANCH FOREMAN

Job Description:

The Sheep Ranch Foremen supervise and coordinate the activities of workers engaged in breeding, lambing, feeding, herding, predator control and in the construction and repair of fences, pens, and buildings using hand and power tools. They keep records and make some management decisions. Most of their activities are determined by the sheep rancher. They participate in marketing activities and have many health related tasks. They perform many technical duties such as castrating and docking and are responsible for some feed production and machinery operation and maintenance.

Competencies Identified and Validated

N = 38*

	Competencies	Weighted Mean**
1.	Judging and selection.	3.1
a.	Determine condition of a flock or pen of sheep.	3.6
b.	Determine condition of teeth.	3.5
c.	Determine age.	3.5
d.	Identify defects.	3.5
e.	Cull breeding stock.	3.5
f.	Sort sheep according to size, weight, sex and condition.	3.4
g.	Remove incompatible sheep from flock.	3.3
h.	Identify various breeds.	2.9
i.	Identify points or traits which breed associations discriminate against.	2.8
j.	Attend breeding stock sales and purchases stock.	2.5
k.	Assist youth in selecting project animals or foundation stock.	1.9
2.	Supervision of workers and labor management.	3.1
a.	Plan work schedules.	3.5
b.	Suggest to employees improvements in methods of accomplishing work.	3.5
c.	Develop harmonious relationship with employees.	3.5
d.	Determine labor needed and prepare for peak work loads.	3.5
e.	Train employees.	3.5
f.	Assign employees according to skills and interests.	3.4
g.	Observe employee compliance to safety precautions.	3.3

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* Responses from 38 National Wool Growers and Sheep Producers in 27 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	h.	Judge prospective employee qualifications.	3.0
	i.	Inform employees of benefits and responsibilities under regulatory laws.	2.9
	j.	Develop employees' training programs.	2.8
	k.	Hire and fire employees.	2.7
	l.	Determine which regulatory laws concerning employees, apply to the operations.	2.7
	m.	Negotiate specific arrangements with employees as to wages, hours, fringe benefits, etc.	2.4
3.		Technical management skills.	3.1
	a.	Dock lambs.	3.7
	b.	Castrate lambs.	3.6
	c.	Paint brands.	3.2
	d.	Catch mature sheep with hands or crook.	3.2
	e.	Trim feet.	3.1
	f.	Mark, notch, tag, or tatoo ears.	3.1
	g.	Restrain mature sheep.	2.9
	h.	Exercise sheep.	1.7
4.		Management decisions.	3.0
	a.	Plan efficient utilization of feed, water, and storage facilities.	3.5
	b.	Insure timeliness of all operations.	3.5
	c.	Plan effective use of equipment.	3.4
	d.	Determine cleaning and sanitation requirements for the operation.	3.3
	e.	Plan the efficient utilization and layout of pens and shelters.	3.3
	f.	Determine the best type of feeding program.	3.2
	g.	Determine when to use professional services.	3.1
	h.	Determine safety precautions to be observed.	3.1
	i.	Balance rations for lambs on feed.	3.0
	j.	Determine when to move camp.	3.0
	k.	Arrange for transportation of sheep.	3.0
	l.	Determine transportation needs.	2.9
	m.	Plan the efficient utilization of all available resources such as water, timber, and rangeland.	2.8
	n.	Read and interpret various lease and grazing agreements.	2.3
	o.	Determine the value of land to rent or buy.	2.0
5.		Lambing tasks.	2.9
	a.	Identify signs of approaching birth.	3.6
	b.	Assist ewes in lambing.	3.4
	c.	Graft orphan lambs.	3.2
	d.	Revive chilled lambs.	3.2
	e.	Assist lambs in first nursing.	3.2
	f.	Care for orphan lambs.	3.0
	g.	Identify due dates of pregnant ewes.	3.0

h.	Remove and dispose of dead lambs.	3.0
i.	Administer artificial respiration to newborn lambs.	3.0
j.	Paint newborn lamb's navel with iodine.	2.9
k.	Milk ewes.	2.8
l.	Isolate ewes for lambing.	2.8
m.	Regulate temperature in lambing quarters.	2.8
n.	Bed down pregnant ewes.	2.8
o.	Clean newborn lambs.	2.6
p.	Remove afterbirth.	2.6
q.	Use lamb forceps.	2.4
r.	Skin dead lambs.	2.2
6.	Feed and feeding.	2.9
a.	Determine proper amounts to feed various sheep.	3.5
b.	Determine water requirement for flock.	3.5
c.	Identify spoiled feed.	3.4
d.	Feed sheep.	3.4
e.	Determine when and what supplemental feed must be fed.	3.4
f.	Distribute salt and mineral blocks.	3.2
g.	Feed grazing sheep.	3.2
h.	Identify feeds.	3.2
i.	Check ewes' milk supply.	3.1
j.	Determine equipment needed to feed sheep.	3.1
k.	Clean and fill waterers.	3.1
l.	Feed lambs.	3.0
m.	Identify nutrient deficiencies in sheep.	3.0
n.	Flush ewes and rams.	2.9
o.	Interpret feed tags and labels.	2.9
p.	Interpret feed analysis reports.	2.8
q.	Determine nutrient requirements.	2.8
r.	Determine relative nutrient value of feedstuffs.	2.8
s.	Wean lambs.	2.8
t.	Load or unload bales of hay or bedding.	2.7
u.	Determine when lambs may be started on roughage and grain.	2.7
v.	Calculate feed efficiency.	2.6
w.	Develop and balance rations.	2.5
x.	Calculate cost of rations.	2.5
y.	Break up mineral or salt in mineral troughs or boxes.	2.4
z.	Mix feed.	2.0
aa.	Load or unload silage.	1.8
7.	Marketing (buying).	2.8
a.	Buy parts and supplies for machinery.	3.0
b.	Select and purchase drugs and veterinary supplies.	3.0
c.	Develop bill of materials.	2.9
d.	Buy supplies and materials.	2.9

	e.	Buy feed at the best price.	2.8
	f.	Buy groceries for herders and lambing help.	2.6
	g.	Select and purchase desirable breeding stock.	2.6
	h.	Select and purchase desirable lambs.	2.6
	i.	Buy farm equipment and machinery.	2.3
8.		Predator control.	2.7
	a.	Identify predator losses.	3.4
	b.	Shoot various predators.	3.3
	c.	Develop a predator control program based on habits and life cycles of various predators.	2.9
	d.	Use baits and poisons.	2.7
	e.	Set traps.	2.6
	f.	Dispose of predator carcasses.	2.6
	g.	Employ a trapper and direct his activities.	2.2
	h.	Construct predator-proof enclosures.	2.2
9.		Record keeping.	2.7
	a.	Maintain predator and other death losses.	3.5
	b.	Count sheep.	3.4
	c.	Keep equipment maintenance and repair records.	3.2
	d.	Keep records of health, individual prevention, treatment and death.	3.0
	e.	Keep personnel records.	3.0
	f.	Maintain breeding records.	2.9
	g.	Maintain production records.	2.7
	h.	Keep purchases and sales records.	2.7
	i.	Determine rate of gain.	2.5
	j.	Interpret sire summaries.	2.3
	k.	Maintain official production records.	2.3
	l.	Keep financial records.	2.3
	m.	Execute responsibility for payroll and withholding.	2.2
	n.	Register breeding stock.	2.0
10.		Breeding tasks.	2.7
	a.	Turn rams in with ewes.	3.4
	b.	Determine ratio of rams per 100 ewes.	3.3
	c.	Determine when to start and stop breeding season.	3.1
	d.	Apply breeding harness to ram.	1.9
	e.	Detect heat.	1.9
11.		Health program development.	2.7
	a.	Identify symptoms of common diseases.	3.3
	b.	Identify symptoms of common parasites.	3.3
	c.	Interpret labels on medication.	3.2
	d.	Vaccinate sheep.	3.2
	e.	Identify injuries on sheep.	3.1
	f.	Prevent common diseases and parasites.	3.1

g.	Determine when to rotate pastures to control diseases and parasites.	3.1
h.	Inspect sheep for defects.	3.0
i.	Worm sheep.	3.0
j.	Identify harmful or poisonous plants.	3.0
k.	Drench sheep.	2.8
l.	Store pesticides, vaccines, and medications.	2.8
m.	Develop a vaccination program.	2.8
n.	Check rams for epididymitis.	2.8
o.	Isolate sheep with transmissible diseases.	2.8
p.	Determine amounts of medication or materials needed in specific situations.	2.8
q.	Identify and correct sanitation problems.	2.7
r.	Pill sheep.	2.7
s.	Treat nicked or cut sheep.	2.6
t.	Supply medication through feed and water.	2.5
u.	Grub out or otherwise remove poisonous plants.	2.5
v.	Remove or bury dead animals.	2.4
w.	Spray sheep.	2.4
x.	Isolate newly purchased animals.	2.3
y.	Disinfect buildings and equipment.	2.3
z.	Precondition animals prior to shipment.	2.3
aa.	Remove manure from quarters or pens.	2.2
bb.	Calculate the cost of various health programs.	2.2
cc.	Bathe sheep in foot bath.	2.0
dd.	Dip sheep.	2.0
ee.	Take temperature.	1.9
ff.	Spread manure.	1.8
12.	Sheep herding.	2.6
a.	Guard flock against predators.	3.2
b.	Tend flock grazing on pasture or rangeland.	2.8
c.	Work sheep dog(s).	2.6
d.	Tend flock on trail or [illegible]ghway.	2.6
e.	Care for horses.	2.5
f.	Train sheep dog(s).	2.1
13.	Maintain and use hand and power tools.	2.5
a.	Instruct employees on safe use of hand and power tools.	2.9
b.	Read and interpret instructions on power tool operation.	2.7
c.	Identify tools.	2.7
d.	Use hand tools.	2.6
e.	Use power tools.	2.5
f.	Adjust power tools.	2.5
g.	Clean tools.	2.5
h.	Sharpen tools.	2.4
i.	Recondition tools.	1.9

14.	Feed production.	2.5
a.	Determine range or pasture quality and quantity.	3.3
b.	Control weeds or non-forage plants in pasture or rangeland.	2.9
c.	Store feed crops.	2.4
d.	Plant feed crops.	2.4
e.	Harvest feed crops.	2.3
f.	Cultivate feed crops.	2.2
g.	Fertilize feed crops.	2.2
h.	Irrigate feed crops.	2.0
15.	Machinery and equipment operation, maintenance and repair.	2.4
a.	Develop a maintenance schedule for vehicles and equipment.	2.9
b.	Inspect equipment for operating defects.	2.8
c.	Operate a truck loaded with sheep.	2.8
d.	Operate a feed truck.	2.8
e.	Operate a tractor.	2.8
f.	Grease and oil equipment.	2.7
g.	Add coolant to cooling systems.	2.7
h.	Read and interpret operator's manual or assembly diagrams.	2.7
i.	Distribute feed in feed bunks.	2.7
j.	Position truck for loading feed.	2.6
k.	Inflate tires.	2.5
l.	Install and adjust belts or chains.	2.5
m.	Change oil and oil filters.	2.5
n.	Identify hardware.	2.5
o.	Install and service batteries.	2.4
p.	Operate scales and record weights of feed.	2.4
q.	Set up power clipper unit and other equipment for shearing.	2.4
r.	Service fuel strainer, fuel filter, and sediment bowl.	2.3
s.	Purchase clippers and clipper parts.	2.3
t.	Service air cleaners.	2.3
u.	Clean debris and dirt from vehicles.	2.3
v.	Remove equipment from storage.	2.2
w.	Prepare equipment for storage.	2.2
x.	Replace radiator hoses.	2.2
y.	Replace and adjust spark plugs.	2.2
z.	Adjust carburetors.	2.2
aa.	Repack bearings.	2.1
bb.	Replace bearings and seals.	1.9
cc.	Install carburetor repair kit.	1.9
dd.	Time engine.	1.8
16.	Marketing (selling).	2.4
a.	Properly load sheep.	3.6
b.	Weigh sheep.	3.2
c.	Estimate weight of lambs.	3.2

d.	Sort lambs by weight and grade.	3.0
e.	Prepare carriers for hauling sheep.	3.0
f.	Classify or grade sheep for marketing.	3.0
g.	Calculate shrinkage of sheep and of wool.	2.6
h.	Determine when to market sheep.	2.6
i.	Interpret market reports.	2.6
j.	Evaluate influence of market grade on net return.	2.4
k.	Determine marketing costs.	2.4
l.	Determine where to market sheep.	2.4
m.	Prepare advertisement for sale animals.	2.1
n.	Select a wool market.	2.1
o.	Calculate dressing percent.	2.1
p.	Take pictures of stock for advertising purposes.	1.9
q.	Identify wholesale and retail cuts.	1.8
r.	Consign breeding stock to sales.	1.5
s.	Conduct a sale.	1.5
17.	Wool shearing.	2.4
a.	Store wool.	3.4
b.	Determine when to shear sheep.	3.1
c.	Haul wool to market.	2.7
d.	Supervise sheep shearing crew.	2.6
e.	Tag ewes prior to lambing or breeding.	2.6
f.	Bundle and tie fleece.	2.5
g.	Contract with wool shearing firm.	2.4
h.	Shear wool with power driven clippers.	2.3
i.	Pack wool.	2.2
j.	Clip ram for breeding.	2.1
k.	Set up and test shearing equipment.	1.9
l.	Arrange for core testing of wool.	1.9
m.	Sharpen and adjust shears.	1.9
n.	Repair clippers.	1.6
18.	Construction and repair.	2.3
a.	Construct or repair permanent fences.	3.2
b.	Construct or repair temporary fences.	3.1
c.	Construct or repair feed racks, bunks, troughs, etc.	3.1
d.	Construct or repair and hang gates and doors.	2.9
e.	Replace valves in water system.	2.8
f.	Construct lambing pens (jugs).	2.6
g.	Replace fuses.	2.6
h.	Repair faucets.	2.5
i.	Repair electrical cords and broken wires.	2.5
j.	Repair leaks in roof of buildings.	2.5
k.	Determine the costs of construction.	2.4
l.	Replace water pipe.	2.4
m.	Wire simple electrical circuits.	2.3
n.	Replace belts and pulleys.	2.2
o.	Build and remove concrete forms.	2.2

	p.	Replace window pane.	2.2
	q.	Repair metal structures with arc welder.	2.1
	r.	Develop a working drawing of a structure to be built.	2.1
	s.	Replace electrical switches.	2.0
	t.	Repair metal structures with oxyacetylene welder.	2.0
	u.	Read and interpret blueprints.	2.0
	v.	Construct a windbreak.	1.9
	w.	Construct a foot path.	1.9
	x.	Mix, pour, finish, and cure concrete.	1.8
	y.	Construct a major structure (barn, building, or shelter).	1.8
	z.	Repair sprinklers.	1.7
	aa.	Lay concrete blocks.	1.5
19.		Miscellaneous management tasks.	2.3
	a.	Provide camp with food and other necessities.	2.7
	b.	Move camp or determine when to move camp.	2.5
	c.	Attend field days or workshops conducted by government agencies or breed associations.	2.4
	d.	Attend adult classes or young farmer meetings.	2.1
	e.	Attend local service club meetings.	1.8
20.		Slaughtering.	1.6
	a.	Skin sheep.	1.7
	b.	Dress out sheep.	1.6
	c.	Slaughter sheep.	1.6

SHEEP RANCH HAND

Other Titles: Farm Hand, Hired Man.

Job Description:

Sheep Ranch Hands are involved in a wide variety of farm and ranch chores. They are important in all operations where labor is important, especially during lambing season. They operate and maintain trucks and tractors and perform many routine feeding chores. They build fences and construct small farm and ranch projects such as feed racks and gates, using hand and power tools. They herd sheep and must control predators. They perform many health related chores including such tasks as castrating and docking.

Competencies Identified and Validated

N = 37*

Competencies		Weighted Mean**
1.	Hand and power tools.	2.8
a.	Use power tools safely.	3.1
b.	Use hand tools safely.	3.1
c.	Clean tools.	3.0
d.	Identify tools.	2.9
e.	Read and interpret instructions on power tool operation.	2.9
f.	Sharpen tools.	2.8
g.	Adjust power tools.	2.6
h.	Recondition tools.	2.2
2.	Feed and feeding.	2.8
a.	Feed sheep.	3.2
b.	Check ewes' milk supply.	3.2
c.	Clean and fill waterers.	3.0
d.	Identify spoiled feed.	3.0
e.	Load or unload bales of hay or bedding.	2.9
f.	Identify feeds.	2.9
g.	Break up mineral and salt in mineral troughs or boxes.	2.8
h.	Determine proper amount of feed for various sheep.	2.8
i.	Wean lambs.	2.5
j.	Load or unload silage.	2.5
k.	Teach lambs to eat grain.	2.4

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* Responses from 37 National Wool Growers in 25 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

l.	Mix feed.	2.4
3.	Lambing tasks.	2.7
a.	Assist lambs in first nursing.	3.2
b.	Assist ewes in lambing.	3.2
c.	Assist with abnormal births.	3.1
d.	Revive chilled lambs.	3.1
e.	Graft orphan lambs.	3.1
f.	Identify signs of approaching birth.	3.1
g.	Care for orphan lambs.	3.0
h.	Remove and dispose of dead lambs.	3.0
i.	Milk ewes.	2.8
j.	Bed down pregnant ewes.	2.5
k.	Paint newborn lamb's navel with iodine.	2.5
l.	Administer artificial respiration to newborn lambs.	2.4
m.	Clean newborn lambs.	2.3
n.	Remove afterbirth.	2.3
o.	Isolate ewes for lambing.	2.2
p.	Identify due dates of pregnant ewes.	2.2
q.	Skin dead lambs.	2.1
r.	Regulate temperature in lambing quarters.	1.8
4.	Predator control.	2.6
a.	Shoot predators.	3.3
b.	Set traps.	2.5
c.	Dispose of predator carcasses.	2.5
d.	Construct predator proof enclosures.	2.2
5.	Machinery and equipment operation, maintenance and repair.	2.6
a.	Inflate tires.	4.0
b.	Grease and oil equipment.	4.0
c.	Operate a feed truck.	3.9
d.	Position truck for loading feed.	2.9
e.	Operate a tractor.	2.9
f.	Inspect equipment for operating defects.	2.9
g.	Change oil and oil filters.	2.9
h.	Add coolant to cooling system.	2.9
i.	Distribute feed in feed bunks.	2.8
j.	Install and adjust belts or chains.	2.8
k.	Identify hardware.	2.8
l.	Clean debris and dirt from vehicles.	2.8
m.	Read and interpret operator's manual or assembly diagrams.	2.7
n.	Service fuel strainer, fuel filter, and sediment bowl.	2.7
o.	Operate a truck loaded with sheep.	2.7
p.	Install and service batteries.	2.7
q.	Prepare equipment for storage.	2.6
r.	Replace radiator hose.	2.6

s.	Remove equipment from storage.	2.6
t.	Service air cleaners.	2.5
u.	Operate scales and record weights of feed.	2.4
v.	Repack bearings.	2.4
w.	Replace and adjust spark plugs.	2.4
x.	Replace bearings and seals.	2.1
y.	Adjust carburetors.	2.1
z.	Install carburetor repair kit.	2.0
aa.	Time engine.	1.9
6.	Sheep herding.	2.5
a.	Guard flock against predators.	3.0
b.	Tend flock on trail or highway.	2.7
c.	Work sheep dogs.	2.5
d.	Tend flock grazing on pasture or range.	2.5
e.	Train sheep dogs.	1.9
7.	Marketing skills.	2.5
a.	Load sheep.	3.1
b.	Count sheep.	2.9
c.	Prepare carriers for hauling sheep.	2.3
d.	Buy supplies.	1.7
8.	Develop a health program.	2.4
a.	Identify injuries on sheep.	3.1
b.	Identify symptoms of common diseases.	3.0
c.	Treat nicked or cut sheep.	2.8
d.	Identify symptoms of common parasites.	2.8
e.	Vaccinate sheep.	2.7
f.	Remove manure from quarters or pens.	2.7
g.	Identify poisonous plants.	2.6
h.	Isolate sheep with transmissible diseases.	2.6
i.	Worm sheep.	2.6
j.	Drench sheep.	2.6
k.	Pill sheep.	2.5
l.	Inspect sheep for defects.	2.5
m.	Store pesticides, vaccines, and medicines.	2.5
n.	Interpret labels on medicines, drugs, and pesiticide containers.	2.4
o.	Prevent common diseases and parasites.	2.4
p.	Spray sheep.	2.3
q.	Supply medicines through feed and water.	2.2
r.	Determine amounts of medication or materials needed in specific situations.	2.2
s.	Identify and correct sanitation problems.	2.2
t.	Grub out or otherwise remove poisonous plants.	2.2
u.	Disinfect buildings and equipment.	2.1
v.	Spread manure.	2.0
w.	Precondition animals prior to shipment.	2.0
x.	Dip sheep.	1.9
y.	Bathe sheep in foot bath.	1.8

	z.	Isolate newly purchased animals.	1.8
	aa.	Select and purchase drugs and other veterinary supplies.	1.8
9.		Producing feed.	2.4
	a.	Store feed crops.	2.6
	b.	Control weeds or non-forage plants in pasture or rangeland.	2.4
	c.	Harvest feed crops.	2.4
	d.	Cultivate feed crops.	2.4
	e.	Plant feed crops.	2.3
	f.	Fertilize feed crops.	2.2
	g.	Irrigate feed crops.	2.0
10.		Construction and repair.	2.4
	a.	Construct or repair permanent fences.	3.3
	b.	Construct or repair feed racks, bunks, troughs, etc.	3.2
	c.	Construct or repair temporary fences.	3.2
	d.	Construct or repair and hang gates.	2.8
	e.	Replace fuses.	2.7
	f.	Construct lambing pens (jugs).	2.6
	g.	Replace valves in water system.	2.5
	h.	Replace water pipe.	2.5
	i.	Repair faucets.	2.5
	j.	Repair leaks in roofs of buildings.	2.5
	k.	Replace belts and pulleys.	2.4
	l.	Construct a windbreak.	2.4
	m.	Replace window pane.	2.3
	n.	Repair electrical cords and broken wires.	2.2
	o.	Replace electrical switches.	2.2
	p.	Wire simple electrical circuits.	2.0
	q.	Repair sprinklers.	1.8
	r.	Repair metal structures with arc welder.	1.7
	s.	Repair metal structures with oxyacetylene welder.	1.7
	t.	Construct a foot bath.	1.7
	u.	Build and remove concrete forms.	1.6
11.		Technical management skills.	2.3
	a.	Catch mature sheep with hands or crook.	3.1
	b.	Dock lambs.	3.0
	c.	Paint brands.	2.9
	d.	Castrate lambs.	2.8
	e.	Sort sheep according to size, weight, sex, and condition.	2.8
	f.	Restrains mature sheep.	2.8
	g.	Mark, notch, tag, or tattoo sheep.	2.7
	h.	Determine condition of teeth.	2.7
	i.	Trim feet.	2.6
	j.	Tie fleece.	2.4

	k.	Tag ewes prior to breeding or lambing.	2.0
	l.	Shear sheep.	1.9
	m.	Exercise sheep.	1.9
	n.	Implant lambs.	1.8
	o.	Care for sheep at sale or show.	1.8
	p.	Repair clippers.	1.7
	q.	Move camp.	1.6
	r.	Sharpen clippers.	1.6
	s.	Apply breeding harness to rams.	1.6
12.	Record keeping.		2.3
	a.	Keep records of predator and other death losses.	2.7
	b.	Keep personal records such as days worked.	2.5
	c.	Use scales and record weights of crops, feed or sheep.	2.3
	d.	Keep health records.	2.1
	e.	Keep production records.	1.9

SHEEP HERDER

Other Titles: Shepherd, Sheepman, Mutton Puncher, Herder, and Herdsman.

Job Description:

Sheep Herders tend flocks of sheep grazing on range or pasture. They are very active with breeding and lambing chores and keep minor records. Providing the flock with feed, performing many technical tasks such as castrating and docking, and some fence construction and repair are all tasks performed by Herders. They operate some machinery when necessary.

Competencies Identified and Validated

N = 33*

Competencies	Weighted Mean**
1. Predator control.	3.2
a. Guard flock against predators.	3.7
b. Identify predator losses.	3.6
c. Shoot various predators.	3.5
d. Properly use baits and poisons.	2.9
e. Dispose of predator carcasses.	2.8
f. Set traps.	2.7
2. Construction and repair.	3.2
a. Construct or repair permanent fences.	3.2
b. Construct or repair temporary fences.	3.2
3. Sheep herding.	3.1
a. Tend flock on trail or highway.	3.3
b. Observe flock for problem cases.	3.3
c. Tend flock grazing on pasture or range.	3.2
d. Search, locate and return stray sheep.	3.2
e. Work sheep dogs.	3.0
f. Select bedding ground for overnight stay.	2.9
g. Determine range quality and quantity.	2.8
h. Train sheep dogs.	2.7
4. Feed and feeding.	3.0
a. Feed sheep supplemental feed.	3.4
b. Distribute salt and minerals.	3.4

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* Responses from 33 National Wool Growers and Sheep Producers in 21 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

c.	Clean and fill waterers.	3.2
d.	Check ewes' milk supply.	3.1
e.	Identify poisonous plants.	3.1
f.	Determine when supplemental feed must be fed.	2.8
g.	Identify nutrient deficiencies in sheep.	2.8
h.	Wean lambs.	2.5
i.	Flush ewes and lambs.	2.5
5.	Breeding and lambing.	2.9
a.	Assist in lambing.	3.5
b.	Graft orphan lambs.	3.5
c.	Revive chilled lambs.	3.4
d.	Assist lambs in first nursing.	3.4
e.	Identify signs of approaching birth.	3.3
f.	Care for orphan lambs.	3.2
g.	Turn rams in with ewes.	3.1
h.	Remove rams from ewe flock.	3.0
i.	Milk ewes.	2.9
j.	Bed down pregnant ewes.	2.7
k.	Remove afterbirth.	2.5
l.	Paint navel with iodine.	2.4
m.	Regulate temperature in lambing quarters.	2.4
n.	Isolate ewes for lambing.	2.3
o.	Clean newborn lambs.	2.3
6.	Judging and selection.	2.9
a.	Determine condition of flock.	3.3
b.	Identify defects in sheep.	3.1
c.	Remove incompatible sheep from flock.	2.9
d.	Determine condition of teeth.	2.9
e.	Assist in sorting sheep according to size, weight, sex, and condition.	2.9
f.	Assist in culling ewes.	2.7
g.	Identify various breeds.	2.4
7.	Developing a health program.	2.9
a.	Identify injuries on sheep.	3.4
b.	Administer medication to sick sheep.	3.2
c.	Identify symptoms of common diseases.	3.2
d.	Identify symptoms of common parasites.	3.2
e.	Isolate sheep with transmissible diseases.	3.1
f.	Interpret labels on medications, drugs, and pesticide containers.	3.1
g.	Remove or bury dead animals.	3.0
h.	Vaccinate sheep.	2.9
i.	Store pesticides, vaccines, and medications.	2.9
j.	Treat nicked or cut sheep.	2.9
k.	Worm sheep.	2.9
l.	Determine amounts of medication or materials needed in specific situations.	2.8
m.	Assist in spraying sheep.	2.8

	n.	Drench sheep.	2.8
	o.	Pill sheep.	2.7
	p.	Grub out or otherwise remove poisonous plants.	2.5
	q.	Isolate newly purchased animals.	2.5
	r.	Precondition animals prior to shipment.	2.5
	s.	Assist in dipping sheep.	2.4
8.		Technical management skills.	2.8
	a.	Catch mature sheep with hands or crook.	3.2
	b.	Paint brands on sheep.	3.1
	c.	Dock lambs.	3.1
	d.	Castrate lambs.	3.0
	e.	Use power tools safely.	2.9
	f.	Use hand tools safely.	2.9
	g.	Assist in shearing sheep.	2.9
	h.	Mark, notch, tag, or tattoo ears.	2.9
	i.	Trim feet.	2.7
	j.	Restrain mature sheep.	2.6
	k.	Care for horses.	2.2
	l.	Shoe horses.	1.5
9.		Record keeping.	2.7
	a.	Maintain record of predator and other death losses.	3.4
	b.	Maintain record of ammunition and other supplies needed.	3.0
	c.	Keep personal records such as days worked.	2.7
	d.	Keep lambing records.	2.5
	e.	Maintain production records.	1.9
10.		Machinery and equipment operation, and maintenance.	2.5
	a.	Operate a truck.	2.8
	b.	Operate a tractor.	2.6
	c.	Grease and oil equipment.	2.6
	d.	Prepare equipment for storage.	2.0
11.		Slaughtering.	1.8
	a.	Skin sheep.	2.0
	b.	Dress cut sheep.	1.8
	c.	Slaughter sheep.	1.7
	d.	Prepare skin for market.	1.5

CAMP TENDER

Other Title: Camp Jack.

Job Description:

Camp Tenders supervise workers engaged in tending bands of sheep on range or pasture and keep them supplied with food and other necessities. They perform many technical management tasks, including moving camp. They make some management decisions including evaluating the condition of the sheep and the range. They keep some minor records.

Competencies Identified and Validated

N = 39*

Competencies	Weighted Mean**
1. Management decisions.	3.0
a. Evaluate condition of sheep.	3.5
b. Evaluate condition of range.	3.3
c. Determine when to move to another location.	3.0
d. Determine carrying capacity.	2.9
e. Plan effective use of equipment and labor.	2.8
f. Designate area to be grazed by each sheep herder.	2.8
g. Determine transportation needs.	2.7
2. Technical management tasks.	3.0
a. Shoot predators.	3.5
b. Move camp.	3.3
c. Transport feed, salt, and water to camp.	3.3
d. Drive truck.	3.3
e. Guard flock against predators.	3.2
f. Herd sheep.	3.1
g. Assist in herding band to new location.	3.1
h. Distribute salt and mineral blocks.	3.0
i. Deliver mail.	2.8
j. Set traps.	2.8
k. Care for horses.	2.8
l. Herd sheep.	2.6
m. Provide camp with wood.	2.5
n. Melt snow for camp use.	2.0
3. Purchasing tasks.	2.8

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* Responses from 39 National Wool Growers and Sheep Producers in 23 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	a.	Maintain storage of supplies and feed needed by sheep herders.	2.9
	b.	Purchase salt and supplemental feed for range sheep.	2.7
	c.	Purchase food, fuel, ammunition, and supplies for sheep herders.	2.6
4.		Supervision of workers and labor management.	2.7
	a.	Observe employee compliance to safety precautions.	3.0
	b.	Develop harmonious relationships with workers.	2.8
	c.	Suggest to workers improvements in methods of accomplishing work.	2.7
	d.	Plan work schedules.	2.6
	e.	Train employees.	2.5
	f.	Assign workers according to skills and interests.	2.5
	g.	Inform employees of benefits and responsibilities under regulatory laws.	2.2
5.		Keep records.	2.3
	a.	Keep records of supplies purchased, on hand, and consumed.	2.8
	b.	Keep personnel records.	2.6
	c.	Keep personal records such as days worked.	2.6
	d.	Maintain a journal.	2.1
	e.	Execute responsibility for payroll and withholding.	1.8
	f.	Prepare a budget for each camp.	1.8

LAMB FEEDER

Job Description:

Lamb Feeders feed lambs for market in a confined feedlot envirohment. They are responsible for the success or failure of the feedlot operation and make all critical management decisions. These decisions include those in marketing, feed production, feeding, shearing, and the health program. They keep records and supervise all labor and operations on the feed-lot. They construct facilities and equipment using hand and power tools. They operate and maintain power machinery and equipment. They may also perform legislative and service activities.

Competencies Identified and Validated

N = 48*

Competencies	Weighted Mean**
1. Management decisions.	3.3
a. Balance rations for lambs on feed.	3.6
b. Plan efficient utilization of feed, water, and storage facilities.	3.6
c. Determine the best type of feeding program.	3.6
d. Determine cleaning and sanitation requirements for the operation.	3.4
e. Plan the efficient utilization of all available resources.	3.4
f. Insure timeliness of all operations.	3.4
g. Determine when to use professional services.	3.4
h. Plan the efficient utilization and layout of pens and shelters.	3.3
i. Arrange for transportation of sheep.	3.3
j. Determine long and short term goals of the operation.	3.2
k. Determine transportation needs.	3.2
l. Plan effective use of equipment.	3.2
m. Determine the value of land to rent or buy.	3.1
n. Determine safety precautions to be observed.	3.0
o. Plan the insurance program for the operation.	2.8
2. Marketing (buying).	3.2
a. Select and purchase lambs.	3.5
b. Buy feed.	3.4

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* Responses from 48 Lamb Feeders in 19 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	c. Select and purchase drugs and veterinary supplies.	3.3
	d. Buy supplies.	3.2
	e. Buy farm equipment and machinery.	3.0
	f. Develop bill of materials.	3.0
3.	Feed and feeding.	3.2
	a. Develop and balance rations.	3.6
	b. Identify nutrient deficiencies in lambs.	3.5
	c. Identify spoiled feed.	3.5
	d. Determine proper amounts to feed various pens of lambs.	3.5
	e. Determine nutrient requirements.	3.5
	f. Calculate feed efficiency.	3.5
	g. Determine relative nutrient value of feedstuffs.	3.5
	h. Determine water requirements for lambs.	3.5
	i. Calculate cost of rations.	3.5
	j. Interpret feed analysis reports.	3.4
	k. Interpret feed tags and labels.	3.4
	l. Determine equipment needed to feed lambs.	3.4
	m. Distribute salt and minerals.	3.4
	n. Clean and fill waterers.	3.4
	o. Identify feeds.	3.3
	p. Feed lambs.	3.3
	q. Mix feed.	2.8
	r. Load or unload bales of hay or bedding.	2.7
	s. Break up minerals or salt in mineral troughs or boxes.	2.4
	t. Load or unload silage.	2.0
4.	Shearing lambs.	3.2
	a. Store wool.	3.4
	b. Determine when to shear sheep.	3.3
	c. Contract with wool shearing firm.	3.3
	d. Supervise shearing crew.	2.8
5.	Record keeping.	3.2
	a. Keep financial records.	3.7
	b. Keep purchase and sales records.	3.6
	c. Determine rate of gain.	3.5
	d. Keep record of vaccinations, disease treatment, and death losses.	3.5
	e. Use scales and record weights of crops, feed, or sheep.	3.5
	f. Keep livestock and equipment inventories.	3.5
	g. Set up and maintain record keeping systems.	3.4
	h. Keep production records.	3.4
	i. Determine efficiency of production.	3.4
	j. Keep records of feed fed.	3.4
	k. Determine marketing costs.	3.3
	l. Calculate return on wool.	3.2

m.	Keep records of pens fed.	3.2
n.	Keep record of costs involved in disease and injury prevention and treatment.	3.1
o.	Keep personal records.	2.9
p.	Determine net worth of the operation.	2.9
q.	Assist accountant in preparing tax return.	2.9
r.	Figure depreciation.	2.8
s.	Keep personnel records.	2.8
t.	Keep equipment maintenance and repair records.	2.8
u.	Execute responsibility for payroll and withholding.	2.7
v.	Prepare a budget.	2.6
6.	Develop a health program.	3.2
a.	Determine amounts of medicines or materials needed in specific situations.	3.8
b.	Develop a vaccination program.	3.7
c.	Isolate sheep with transmissible diseases.	3.6
d.	Identify symptoms of common diseases.	3.5
e.	Identify symptoms of common parasites.	3.5
f.	Supervise the total health program.	3.5
g.	Prevent common diseases and parasites.	3.5
h.	Interpret labels on medicines, drugs, and pesticide containers.	3.4
i.	Inspect sheep for defects.	3.4
j.	Remove or bury dead animals.	3.4
k.	Identify and correct sanitation problems.	3.4
l.	Vaccinate sheep.	3.4
m.	Worm sheep.	3.4
n.	Supply medication through feed and water.	3.3
o.	Store pesticides, vaccines, and medicines.	3.3
p.	Isolate newly purchased animals.	3.2
q.	Drench sheep.	3.2
r.	Calculate the cost of various health programs.	3.2
s.	Remove manure from quarters or pens.	3.0
t.	Pill sheep.	3.0
u.	Identify poisonous plants.	2.9
v.	Disinfect building and equipment.	2.8
w.	Treat nicked or cut sheep.	2.8
x.	Spread manure.	2.7
y.	Take temperature.	2.6
z.	Make worm egg counts.	2.6
aa.	Dip sheep.	2.5
bb.	Spray sheep.	2.4
cc.	Take a blood sample.	2.4
7.	Marketing (selling).	3.1
a.	Prepare carriers for hauling lambs.	3.9
b.	Determine when to market lambs.	3.6
c.	Determine where to market lambs.	3.6
d.	Properly load lambs.	3.5
e.	Establish good relations with packer.	3.4

f.	Weigh lambs.	3.4
g.	Sort lambs by weight and grade.	3.4
h.	Classify or grade lambs for marketing.	3.4
i.	Evaluate influence of market grade on net return.	3.4
j.	Interpret market reports.	3.4
k.	Estimate weight of lambs.	3.3
l.	Calculate shrinkage of lambs and of wool.	3.2
m.	Select a wool market.	3.1
n.	Calculate dressing percent.	3.1
o.	Conduct a sale.	2.3
p.	Grade wool.	2.2
q.	Prepare advertisement for sale of lambs.	2.0
r.	Identify wholesale and retail cuts.	2.0
8.	Supervise workers and labor management.	3.0
a.	Hire and fire employees.	3.3
b.	Determine labor needed and prepare for peak work loads.	3.2
c.	Train employees.	3.2
d.	Develop harmonious relationships with workers.	3.2
e.	Suggest to workers improvements in methods of accomplishing work.	3.1
f.	Plan work schedules.	3.1
g.	Observe employee compliance to safety precautions.	3.1
h.	Judge prospective employee qualifications.	3.1
i.	Negotiate specific arrangements with employees as to wages, hours, fringe benefits, etc.	3.0
j.	Assign workers according to skills and interests.	3.0
k.	Determine which regulatory laws concerning employees, apply to the operation.	2.8
l.	Inform employees of benefits and responsibilities under regulatory laws.	2.7
m.	Develop workers' training programs.	2.7
9.	Judging and selection.	3.0
a.	Determine condition of a pen of lambs.	3.6
b.	Identify defects.	3.2
c.	Determine which breed(s) or type of lambs are best suited to the local situation.	3.2
d.	Identify breeds.	2.7
e.	Identify body parts.	2.5
10.	Machinery and equipment operation, maintenance, and repair.	2.7
a.	Operate scales and record weights of feed.	3.0
b.	Develop a maintenance schedule for vehicles and equipment.	3.0
c.	Read and interpret operator's manual or assembly diagrams.	3.0

d.	Inspect equipment for operating defects.	3.0
e.	Purchase parts and supplies for equipment.	2.9
f.	Distribute feed in feed bunks.	2.9
g.	Grease and oil equipment.	2.9
h.	Identify hardware.	2.8
i.	Operate a feed truck.	2.8
j.	Install and adjust belts or chains.	2.8
k.	Add coolant to cooling systems.	2.8
l.	Change oil and oil filters.	2.7
m.	Inflate tires.	2.7
n.	Operate a tractor.	2.7
o.	Position truck for loading feed.	2.7
p.	Service air cleaners.	2.6
q.	Service fuel strainer, fuel filter and sediment bowl.	2.6
r.	Prepare equipment for storage.	2.5
s.	Clean debris and dirt from vehicles.	2.6
t.	Remove equipment from storage.	2.5
u.	Replace bearings and seals.	2.5
v.	Adjust carburetors.	2.5
w.	Replace radiator hoses.	2.4
x.	Repack bearings.	2.4
y.	Replace and adjust spark plugs.	2.4
z.	Operate a truck loaded with sheep.	2.3
aa.	Install carburetor repair kit.	2.2
bb.	Time engines.	2.0
11.	Maintain and use hand and power tools.	2.6
a.	Read and interpret instructions on power tool operation.	2.7
b.	Clean tools.	2.6
c.	Use power tools.	2.6
d.	Identify tools.	2.6
e.	Adjust power tools.	2.6
f.	Sharpen tools.	2.5
12.	Construction and repair.	2.6
a.	Purchase materials.	3.2
b.	Determine the costs of construction and repairs.	3.1
c.	Develop a bill of materials.	3.0
d.	Construct or repair permanent fences.	2.8
e.	Construct or repair feeders, bunks, troughs, etc.	2.8
f.	Construct or repair temporary fences.	2.8
g.	Repair electrical cords and broken wires.	2.8
h.	Replace valves in water system.	2.8
i.	Construct or repair and hang gates and doors.	2.8
j.	Develop a working drawing of a structure to be built.	2.7
k.	Repair leaks in roof of buildings.	2.7
l.	Replace fuses.	2.7

	m.	Repair faucets.	2.7
	n.	Replace water pipe.	2.6
	o.	Replace belts and pulleys.	2.6
	p.	Read and interpret blueprints.	2.6
	q.	Replace electrical switches.	2.4
	r.	Wire simple electrical circuits.	2.4
	s.	Construct a windbreak.	2.3
	t.	Replace window pane.	2.3
	u.	Build and remove concrete forms.	2.3
	v.	Repair metal structures with arc welder.	2.2
	w.	Repair metal structures with oxacetylene welder.	2.1
	x.	Repair sprinklers.	1.8
	y.	Construct a major structure.	1.8
13.	Feed production.		2.2
	a.	Store feed crops.	2.4
	b.	Harvest feed crops.	2.4
	c.	Cultivate feed crops.	2.4
	d.	Plant feed crops.	2.3
	e.	Fertilize feed crops.	2.3
	f.	Irrigate feed crops.	1.7
14.	Legislative and service activities.		2.1
	a.	Attend various association meetings or conventions.	2.5
	b.	Attend field days or workshops conducted by government agencies or producer organizations.	2.3
	c.	Correspond with legislators.	2.3
	d.	Interpret various bills.	2.0
	e.	Testify before hearings.	2.0
	f.	Develop resolutions for legislators.	1.9
	g.	Conduct field days or judging contests for local youth groups.	1.9
	h.	Attend adult classes or young farmer meetings.	1.9
	i.	Attend local service club meetings.	1.8

FEEDLOT FOREMAN

Job Description:

Feedlot Foremen supervise and coordinate the activities of workers engaged in feeding and caring for lambs on feed. They make many management decisions, and are responsible for the feeding and the health program. They keep various records and are involved in several marketing activities, including some judging and selection. They supervise and assist in the construction and repair of pens, shelters, and other feedlot facilities. They operate, repair, and maintain various pieces of equipment and machinery.

Competencies Identified and Validated

N = 44*

Competencies		Weighted Mean**
1.	Management decisions.	3.1
a.	Insure timeliness of all operations.	3.5
b.	Determine when to use professional services.	3.4
c.	Plan efficient utilization of feed, water, and storage facilities.	3.3
d.	Plan effective use of equipment.	3.2
e.	Determine safety precautions to be observed.	3.1
f.	Plan the efficient utilization of and layout of pens and shelters.	3.1
g.	Plan the efficient utilization of all available resources.	3.1
2.	Supervision of workers and labor management.	3.0
a.	Plan work schedules.	3.4
b.	Determine labor needed and prepare for peak work loads.	3.4
c.	Suggest to workers improvements in methods of accomplishing work.	3.4
d.	Develop harmonious relationships with workers.	3.4
e.	Observe employee compliance to safety precautions.	3.4
f.	Assign workers according to skills and interests.	3.4
g.	Train employees.	3.4
h.	Develop workers' training programs.	3.1
i.	Inform employees of benefits and responsibilities under regulatory laws.	2.9

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* Responses from 44 members of the National Lamb Feeders Association in 19 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	j.	Hire and fire employees.	2.5
	k.	Negotiate specific arrangements with employees as to wages, hours, fringe benefits, etc.	2.4
	l.	Determine which regulatory laws concerning employees, apply to the operation.	2.3
	m.	Judge prospective employee qualifications.	2.2
3.		Developing a health program.	2.9
	a.	Identify symptoms of common diseases.	3.5
	b.	Identify symptoms of common parasites.	3.4
	c.	Identify injuries on sheep.	3.3
	d.	Prevent common diseases and parasites.	3.3
	e.	Isolate sheep with transmissible diseases.	3.3
	f.	Interpret labels on medication, drugs, and pesticide containers.	3.3
	g.	Isolate newly purchased animals.	3.2
	h.	Determine amounts of medicine or materials needed in specific situations.	3.2
	i.	Inspect sheep for defects.	3.2
	j.	Identify and correct sanitation problems.	3.1
	k.	Vaccinate sheep.	3.1
	l.	Develop a vaccination program.	3.1
	m.	Worm sheep.	3.0
	n.	Supply medicines through feed and water.	3.0
	o.	Store pesticides, vaccines, and medicines.	3.0
	p.	Supervise the total health program.	3.0
	q.	Drench sheep.	2.9
	r.	Select and purchase drugs and other veterinary supplies.	2.8
	s.	Remove or bury dead animals.	2.8
	t.	Treat nicked or cut sheep.	2.8
	u.	Pill sheep.	2.7
	v.	Disinfect buildings and equipment.	2.6
	w.	Calculate the cost of various health programs.	2.5
	x.	Remove manure from quarters or pens.	2.5
	y.	Take temperature.	2.4
	z.	Spray sheep.	2.4
	aa.	Trim feet.	2.1
	bb.	Spread manure.	2.0
4.		Feed and feeding.	2.9
	a.	Identify spoiled feed.	3.5
	b.	Determine proper amount to feed various pens of lambs.	3.5
	c.	Identify nutrient deficiencies in lambs.	3.2
	d.	Identify feeds.	3.1
	e.	Distribute salt and minerals.	3.1
	f.	Feed lambs.	3.1
	g.	Determine equipment needed to feed lambs.	3.0
	h.	Develop and balance rations.	2.9
	i.	Determine nutrient requirements.	2.8

j.	Interpret feed tags and labels.	2.8
k.	Clean and fill waterers.	2.8
l.	Interpret feed analysis reports.	2.8
m.	Calculate feed efficiency.	2.8
n.	Calculate cost of rations.	2.8
o.	Determine relative nutrient value of feedstuffs.	2.8
p.	Classify feeds.	2.7
q.	Mix feed.	2.7
r.	Load or unload bales of hay or bedding.	2.5
s.	Break up minerals or salt in mineral troughs or boxes.	2.4
t.	Load or unload silage.	2.1
5.	Judging and selection.	2.9
a.	Use scales and record weights.	3.4
b.	Keep health records.	3.4
c.	Keep feed records.	3.1
d.	Keep equipment maintenance and repair records.	3.1
e.	Keep record of costs involved in disease and injury prevention and treatment.	3.1
f.	Determine rate of gain.	3.0
g.	Keep personnel records.	2.9
h.	Keep livestock and equipment records.	3.8
i.	Maintain production records.	2.8
j.	Determine efficiency of production.	2.8
k.	Maintain personal records such as days worked.	2.8
l.	Keep purchase and sales records.	2.3
m.	Maintain financial records.	2.3
n.	Determine market costs.	2.1
o.	Execute responsibility for payroll and withholding.	2.0
6.	Marketing.	2.8
a.	Weigh lambs.	3.2
b.	Properly load lambs.	3.2
c.	Estimate weight of lambs.	3.1
d.	Sort lambs by weight and grade.	3.1
e.	Classify or grade lambs for marketing.	2.9
f.	Buy supplies.	2.7
g.	Select and purchase drugs.	2.7
h.	Develop bill of materials.	2.5
i.	Calculate shrinkage of lambs and of wool.	2.5
j.	Prepare carriers for hauling lambs.	2.4
k.	Determine when to market lambs.	2.4
7.	Maintaining and using hand and power tools.	2.8
a.	Read and interpret instructions on power tool operation.	3.0
b.	Identify tools.	2.9
c.	Use power tools.	2.9

	d.	Adjust power tools.	2.8
	e.	Clean tools.	2.8
	f.	Sharpen tools.	2.7
	g.	Recondition tools.	2.3
8.		Machinery and equipment operation, maintenance, and repair.	2.6
	a.	Operate scales and record weights of feed.	3.2
	b.	Inspect equipment for operating defects.	3.1
	c.	Develop a maintenance schedule for vehicles and equipment.	2.9
	d.	Read and interpret operator's manual or assembly diagrams.	2.9
	e.	Identify hardware.	2.9
	f.	Operate a tractor.	2.9
	g.	Purchase parts and supplies for equipment.	2.7
	h.	Grease and oil equipment.	2.7
	i.	Add coolant to cooling systems.	2.7
	j.	Distribute feed in feed bunks.	2.7
	k.	Operate a feed truck.	2.6
	l.	Position truck for loading feed.	2.6
	m.	Inflate tires.	2.5
	n.	Change oil and oil filters.	2.5
	o.	Clean debris and dirt from vehicles.	2.5
	p.	Install and adjust belts or chains.	2.5
	q.	Operate a truck loaded with sheep.	2.5
	r.	Service air cleaners.	2.5
	s.	Service fuel strainer, fuel filter, and sediment bowl.	2.5
	t.	Prepare equipment for storage.	2.5
	u.	Remove equipment from storage.	2.4
	v.	Install and service battery.	2.4
	w.	Replace radiator hoses.	2.3
	x.	Repack bearings.	2.3
	y.	Replace and adjust spark plugs.	2.3
	z.	Replace bearings and seals.	2.3
	aa.	Adjust carburetors.	2.2
9.		Construction and repair.	2.4
	a.	Construct or repair temporary fences.	2.8
	b.	Construct or repair feeders, bunks, troughs, etc.	2.8
	c.	Construct or repair permanent fences.	2.8
	d.	Construct or repair and hang gates and doors.	2.8
	e.	Replace valves in water.	2.7
	f.	Replace fuses.	2.7
	g.	Repair faucets.	2.6
	h.	Repair electrical cords and broken wires.	2.5
	i.	Replace water pipe.	2.5
	j.	Replace electrical switches.	2.4
	k.	Repair leaks in roof of buildings.	2.4

l.	Replace belts and pulleys.	2.4
m.	Develop a bill of materials.	2.3
n.	Determine the costs of construction and repairs.	2.3
o.	Repair metal structures with oxyacetylene welder.	2.3
p.	Purchase materials.	2.3
q.	Repair metal structures with arc welder.	2.3
r.	Wire simple electrical circuits.	2.3
s.	Replace window pane.	2.1
t.	Construct a windbreak.	2.0
u.	Repair sprinklers.	1.9
10.	Feed production.	1.8
a.	Store feed crops.	2.0
b.	Plant feed crops.	1.8
c.	Cultivate feed crops.	1.8
d.	Harvest feed crops.	1.8
e.	Fertilize feed crops.	1.7

FEEDLOT LABORER

Job Description:

Feedlot Laborers perform many of the common chores necessary in the feeding of lambs, including feeding, feed production, and construction and repair of fences, gates, and other structures. They are essential in all operations where labor is critical and operate and maintain machinery and vehicles. They maintain and use various hand and power tools and assist with the health program.

Competencies Identified and Validated

N = 39*

Competencies	Weighted Mean**
1. Construction and repair.	3.2
a. Construct or repair permanent fences.	3.4
b. Construct or repair feeders, bunks, troughs, etc.	3.4
c. Construct or repair and hang gates and doors.	3.4
d. Construct or repair temporary fences.	3.4
e. Replace fuses.	3.3
f. Replace valves in water system.	3.2
g. Replace belts and pulleys.	3.2
h. Repair leaks in roof of buildings.	3.1
i. Repair faucets.	3.1
j. Repair electrical cords and broken wires.	2.9
2. Machinery and equipment operation, maintenance, and repair.	3.2
a. Add coolant to cooling systems.	3.5
b. Inflate tires.	3.5
c. Distribute feed in bunks.	3.4
d. Position truck for loading feed.	3.4
e. Operate a feed truck.	3.4
f. Clean debris and dirt from vehicles.	3.4
g. Grease and oil equipment.	3.4
h. Load lambs.	3.4
i. Operate a tractor.	3.3
j. Change oil and oil filters.	3.3
k. Install and adjust belts or chains.	3.3
l. Inspect equipment for operating defects.	3.3
m. Install and service battery.	3.2
n. Operate scales and record weights of feed.	3.2

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* Responses from 39 National Wool Growers and Sheep Producers in 21 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

o.	Prepare equipment for storage.	3.2
p.	Remove equipment from storage.	3.2
q.	Service air cleaners.	3.1
r.	Service fuel strainer, fuel filter, and sediment bowl.	3.1
s.	Replace radiator hoses.	3.1
t.	Read and interpret operator's manual or assembly diagrams.	3.0
u.	Replace and adjust spark plugs.	3.0
v.	Prepare carriers for hauling.	2.7
w.	Operate a truck loaded with sheep.	2.6
3.	Feeds and feeding.	3.1
a.	Clean and fill waterers.	3.6
b.	Feed lambs.	3.5
c.	Identify spoiled feeds.	3.4
d.	Distribute salt and minerals.	3.3
e.	Load or unload bales of hay or bedding.	3.3
f.	Mix feed.	3.2
g.	Break up mineral or salt in mineral troughs or boxes.	3.1
h.	Identify feeds.	3.1
i.	Load or unload silage.	3.0
j.	Determine proper amounts to feed various pens of lambs.	2.7
k.	Keep feed records.	2.3
4.	Hand and power Tools.	3.1
a.	Identify tools.	3.2
b.	Clean tools.	3.2
c.	Use power tools.	3.2
d.	Read and interpret instructions on power tool operation.	3.1
e.	Adjust power tools.	3.1
f.	Sharpen tools.	2.9
5.	Health related tasks.	2.8
a.	Remove or bury dead lambs.	3.3
b.	Remove manure from pens.	3.2
c.	Vaccinate lambs.	3.2
d.	Isolate lambs with transmissible diseases.	3.0
e.	Disinfect buildings and equipment.	3.0
f.	Treat nicked or cut lambs.	2.9
g.	Spread manure.	2.9
h.	Store pesticides, vaccines, and medicines.	2.9
i.	Identify symptoms of common diseases.	2.9
j.	Pill lambs.	2.8
k.	Supply medicines through feed and water.	2.7
l.	Identify symptoms of common parasites.	2.7
m.	Inspect lambs for defects.	2.6
n.	Interpret labels on medicines and drugs and pesticide containers.	2.5
o.	Determine condition of a pen of lambs.	2.4

p. Prevent common diseases and parasites.	2.4
q. Keep health records including treatment and death losses.	2.3
r. Identify defects.	2.2
6. Feed production.	2.6
a. Harvest feed crops.	2.7
b. Cultivate feed crops.	2.6
c. Fertilize feed crops.	2.6
d. Irrigate feed crops.	2.4

SHEEP SHEARER

Other Titles: Sheep Clipper, Stock Clipper, Wool Shearer.

Job Description:

Sheep Shearers shear wool from live sheep using power-driven clippers. They maintain, repair, and sharpen their clippers and keep records of their shearing. They assist in setting up and disassembling the shearing equipment.

Competencies Identified and Validated

N = 90*

Competencies		Weighted Mean**
1.	Record keeping.	3.3
a.	Keep record of sheep shorn.	3.4
b.	Keep personal records.	3.3
2.	Wool shearing.	2.8
a.	Shear wool with power driven clippers.	3.8
b.	Oil clippers.	3.8
c.	Adjust clippers.	3.8
d.	Repair clippers.	3.6
e.	Sharpen clipper blades.	3.5
f.	Assist in setting up and testing power clipper units and other equipment for shearing.	3.2
g.	Assist in disassembling and storing shearing set up.	3.1
h.	Clean up shearing area.	2.8
i.	Doctor nicks and cuts caused from shearing.	2.8
j.	Fold and tie fleece into bundle.	2.1
k.	Assist in herding sheep up to shearing area.	2.0
l.	Herd shorn sheep into runway leading to pen.	1.9
m.	Sack wool.	1.9
n.	Tie wool sacks.	1.8
o.	Load wool sacks into truck.	1.5

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* Responses from 90 Sheep Shearers and Contract Sheep Shearers in 24 states. Survey conducted by the Agricultural Education Section, Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

CONTRACT SHEEP SHEARER - CAPTAIN

Job Description:

Contract Sheep Shearers contract with sheep producers to shear their sheep. They and their crew shear the sheep using power driven clippers. Contract Sheep Shearers supervise the crew and perform several management tasks to insure the efficient use of labor and equipment. They keep accurate records and purchase supplies and equipment.

Competencies Identified and Validated

N = 87*

Competencies		Weighted Mean**
1.	Power tool use and maintenance.	3.3
a.	Clean and repair clippers.	3.6
b.	Sharpen clipper blades.	3.5
c.	Inspect and test clippers and power sources.	3.2
d.	Identify tools.	3.2
e.	Instruct employees on proper clipper repair techniques.	3.1
2.	Record keeping.	3.1
a.	Keep record of number of sheep shorn.	3.5
b.	Maintain equipment maintenance and repair records.	3.4
c.	Submit bills to wool growers for shearing services.	3.3
d.	Keep personal records.	3.3
e.	Set up and maintain financial record keeping systems.	3.3
f.	Keep personnel records.	3.1
g.	Maintain transportation records.	2.9
h.	Write and interpret contracts with wool growers.	2.8
i.	Keep individual performance records for each shearer.	2.7
j.	Assist accountant in preparing tax return.	2.7
k.	Execute responsibility in payroll and withholding.	2.6
3.	Supervise workers and labor management.	3.0
a.	Plan work schedules.	3.5
b.	Determine labor needed and prepare for peak work loads.	3.5
c.	Develop harmonious relationships with workers.	3.3
d.	Suggest to workers improvements in methods of accomplishing work.	3.2

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* Responses from 87 Sheep Shearers and Contract Sheep Shearers in 24 states. Survey conducted by Department of Vocational Education, Colorado State University, Fort Collins, Colorado 80523.

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	e.	Hire and fire employees.	3.2
	f.	Train employees.	3.1
	g.	Observe employee compliance to safety precautions.	3.1
	h.	Judge prospective employee qualifications.	3.0
	i.	Negotiate specific arrangements with employees as to wages, hours, fringe benefits, etc.	3.0
	j.	Assign workers according to skills and interests.	2.9
	k.	Determine which regulatory laws concerning employees, apply to the operation.	2.7
	l.	Inform employees of benefits and responsibilities under regulatory laws.	2.6
	m.	Develop workers' training programs.	2.4
4.		Management decisions.	2.9
	a.	Plan effective use of equipment.	3.4
	b.	Negotiate contracts with wool growers.	3.3
	c.	Insure timeliness of all operations.	3.1
	d.	Plan transportation needs.	3.1
	e.	Determine long and short term goals for the business.	2.9
	f.	Plan for meals for crew.	2.8
	g.	Plan for housing for crew.	2.6
	h.	Plan for the insurance program for the operation.	2.3
5.		Wool shearing.	2.9
	a.	Shear wool with power driven clippers.	3.7
	b.	Set up and test power clipper unit and other equipment for shearing.	3.7
	c.	Supervise sheep shearing crew.	3.2
	d.	Insure even flow of sheep to each shearer.	3.2
	e.	Oil and adjust clippers.	3.1
	f.	Disassemble and store shearing set up.	3.1
	g.	Properly store wool.	3.1
	h.	Clean up shearing area.	3.0
	i.	Fold and tie fleece into bundle.	3.0
	j.	Provide shearers with clippers, sharp blades, oil, etc.	3.0
	k.	Perform first aid on crew members.	2.8
	l.	Doctor cuts and nicks caused from shearing.	2.8
	m.	Sack wool.	2.6
	n.	Tie wool sacks.	2.5
	o.	Assist in herding sheep up to shearing area.	2.3
	p.	Herd shorn sheep into runway leading to pen.	2.1
	q.	Load wool sacks into truck.	1.7
6.		Machinery and equipment operation, maintenance and repair.	2.8
	a.	Inspect equipment for operating defects.	3.3
	b.	Grease and oil equipment.	3.0

c.	Repair clipper power generating unit.	2.7
d.	Operate bus and/or truck.	2.5
e.	Service vehicles.	2.3
7.	Construction and repair.	2.8
a.	Repair electrical cords and broken wires.	3.3
b.	Replace belts and pulleys.	3.0
c.	Determine the costs of construction and repairs.	2.9
d.	Develop a bill of materials.	2.8
e.	Construct restraining pens and gates to facilitate shearing.	2.5
f.	Repair metal structures with arc or oxyacetylene welder.	2.1
8.	Purchasing supplies and equipment.	2.7
a.	Purchase supplies.	3.3
b.	Purchase clippers and other shearing equipment and supplies.	3.2
c.	Purchase or contract for transportation vehicles.	2.5
d.	Purchase meals for employees.	2.2
e.	Provide lodging for employees.	2.2
9.	Public relations and service activities.	2.0
a.	Attend various association meetings or conventions.	2.3
b.	Attend field days or workshops conducted by governmental agencies.	2.0
c.	Attend local service club meetings.	2.0
d.	Attend adult classes or young farmer meetings.	1.9

SMALL ANIMAL SUPPLIER

Other Titles: Small Animal Farmer, Laboratory Animal Producer, Laboratory Animal Breeder, Laboratory Animal Dealer, Laboratory Animal Vendor, Dealer, Commercial Breeder, Laboratory Animal Technician.

Job Description:

Supplies small animals, and in some cases large animals, for laboratory use for both private industry and governmental agency testing, teaching, and research purposes, and for pet shops. Must understand and practice specific mating and breeding systems; provide optimum nutrition, feeding, and watering for animals; must also provide proper housing and caging; must keep accurate identification and records of stock, must know the signs of disease and be cognizant of the steps taken to control diseases of small animals. Must have familiarity with the market needs for laboratory animals. Must be familiar with state, federal, and foreign shipping regulations and with the specific requirements for each species for shipping. Must be familiar with loading and transporting procedures. Can be self-employed, employed by a commercial business, research institution, or employed by a governmental agency or university.

Competencies Identified and Validated

N = 44*

Competencies	Weighted Mean**
1. Know the importance of small laboratory animals to man and the many problems associated with their production.	3.3
a. Recognize the specific problems associated with the species or breed of animals produced.	3.5
b. Like working with small animals.	3.4
c. Have a general knowledge of the use of small animals as a tool of science.	3.2
d. Understand the laws directed to producers and users of small animals for laboratory purposes.	3.0
2. Secure optimum environment for the production of small animals.	2.9
a. Know appropriate sanitation procedures for facilities and equipment.	3.5

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* Responses from 44 Small Animal Suppliers, Managers, and Technicians in 13 states. Survey conducted by The Department of Agricultural Education, The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	b. Know proper waste disposal procedures.	3.1
	c. Know how to accurately read temperature and moisture recording devices.	3.0
	d. Know optimum service requirements for animal rooms such as lighting, heat, cooling, water, drains, ventilation, and humidity for species produced.	3.0
	e. Know good room design and optimum requirements for each species of small animal.	2.6
	f. Be familiar with noise control techniques.	2.6
	g. Know good building design for small animals.	2.5
3.	Know animal maintenance equipment most appropriate for animal species produced.	3.2
	a. Know best methods of cleaning and sanitizing cages.	3.4
	b. Know proper use of weighing instruments and other equipment required in small animal production.	3.3
	c. Know best feeding equipment for species produced.	3.2
	d. Know best watering devices for species produced.	3.2
	e. Know optimum cage dimensions.	3.2
	f. Know best cage arrangement for servicing.	3.1
	g. Know advantages and disadvantages of different materials used for cages (galvanized iron, steel, zinc, aluminum, wood, plastic, etc.).	2.7
4.	Know optimum diet requirements for each species produced.	3.2
	a. Know when to feed the animals and amount of feed to provide.	3.8
	b. Know best bedding and nesting materials to use.	3.5
	c. Understand most desirable foods needed by each species produced.	3.2
	d. Be familiar with inventory systems to assure that feed is used within a certain time since milling.	3.2
	e. Know advantages and disadvantages of ready-made diets.	2.9
	f. Have general knowledge of proteins, carbohydrates, fats, mineral salts, and vitamins required by each species produced.	2.7
5.	Know optimum mating and breeding systems.	3.2
	a. Know procedures needed for random inbred, hybrid, and selected breeding.	3.5
	b. Know reproductive cycle, gestation and lactation period for species produced.	3.4

c. Know most optimum breeding program for species produced.	3.4
d. Recognize signs of delivery problems.	3.3
e. Know procedures needed to secure monogamous and polygamous stock.	3.1
f. Have knowledge of hand mating techniques.	2.8
6. Know proper handling and sexing procedures of small animals.	3.4
a. Know how to properly handle each species produced.	3.8
b. Be able to determine sex of each species produced.	3.8
c. Know how to identify animals by the use of stains, ear punches, tatooing, etc.	3.1
d. Know how to use leg bands, wing bands, collars, chains, neck bands, and ear studs.	2.7
7. Know diseases, insects, and parasites common to each species produced and their control.	3.4
a. Know appropriate methods to sanitize facilities and equipment.	3.7
b. Know how to recognize and identify symptoms of various common diseases of species produced.	3.6
c. Know best procedures for disposing of dead, sick, and unwanted animals.	3.4
d. Know the hygiene and sanitation practices necessary to maintain a specific pathogen free facility.	3.1
e. Know methods used in treatment for identified diseases.	3.0
8. Have knowledge of sanitation procedures.	3.2
a. Know the detergents, antiseptics, and sterilization procedures available.	3.3
b. Have knowledge of pest control processes and equipment.	3.2
c. Know the alternate equipment options available to effectively sanitize rooms, cages, etc.	3.0
9. Have knowledge of and competence in keeping the various records required for each species produced.	3.3
a. Breeding	3.5
b. Disease	3.4
c. Off-spring	3.4

d.	Weight	3.3
e.	Records necessary in compliance of Federal Regulations	3.3
f.	Feeding and nutrition.	3.2
g.	Marketing	2.7

SWINE FARMER

Other Titles: Farmer, Herdsman, Swine Producer, Swine Breeder.

Job Description:

Breeds and raises swine for sale as meat or for other breeders and swine farmers. Selects and mates boars and sows according to breed or qualities of litter desired. Performs the necessary management practices on newborn pigs. Maintains the records needed for making breeding and selection decisions. Determines quantity and types of feeds as necessary. Performs the necessary approved practices that promote efficient and rapid growth and maintains the health of the swine herd. Inspects and examines swine regularly and makes decisions that prevent problems and corrects existing problems. Sells the breeding stock at auctions or to individuals and negotiates with buyers for sale of swine for meat. May also groom and exhibit swine at livestock shows. May grow crops to provide some or all feed needed for his swine herd.

Competencies Identified and Validated

N = 31*

Competencies	Weighted Means**
1. Perform management practices.	2.7
a. Select animals for breeding.	3.6
b. Purchase and produce swine that will utilize feeds efficiently for profit.	3.4
c. Care for baby pigs at birth.	3.4
d. Identify profitable characteristics of breeds.	3.1
e. Identify estrus.	3.1
f. Keep breeding records and farrowing records.	3.1
g. Care for sow or gilt at parturition.	3.1
h. Handle and care for sows and gilts at breeding.	3.0
i. Castrate pigs.	3.0
j. Repair and maintain buildings and equipment.	3.0
k. Identify principal body parts of the hog.	3.0
l. Determine proper space requirements at various levels.	3.0
m. Select animals for market.	2.9
n. Handle and care for boars at breeding.	2.9
o. Clip needle teeth.	2.9

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* Responses from 31 Swine Farmers in 10 states. Survey conducted by Department of Agricultural Education, Iowa State University, Ames, Iowa 50010.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

p.	Administer iron shots.	2.8
q.	Analyze records for selection of breeding stocks.	2.8
r.	Use a pressure sprayer to clean stalls and equipment.	2.8
s.	Ear notch pigs.	2.7
t.	Interpret test station data.	2.7
u.	Develop adequate ventilation systems for buildings.	2.7
v.	Crossbreed for hybrid vigor.	2.7
w.	Clip tails.	2.6
x.	Advise farmers on livestock selection, management, feeding and sanitation.	2.6
y.	Judge a farmer's managerial and production potential.	2.5
z.	Analyze the weaknesses and strengths in a farmers operation and make suggestions that are acceptable to him.	2.5
aa.	Balance litter numbers.	2.4
bb.	Analyze and obtain specific information on any merchandise handled through use of catalogues and specification sheets.	2.3
cc.	Identify the location of primal cuts of meat on live animal.	2.3
dd.	Conduct a hog feeding survey.	2.0
ee.	Probe hogs for back fat.	2.0
ff.	Complete the registration procedures for registering purebred animals.	1.8
gg.	Artificially inseminate sows and gilts.	1.3
2.	Provide sanitary environment and practices for good animal health.	3.1
a.	Identify sick animals.	3.7
b.	Recognize symptoms of swine diseases.	3.6
c.	Identify animals with parasite problems.	3.4
d.	Determine and use management practices that will aid in preventing and controlling animal diseases and parasites.	3.4
e.	Determine proper methods and treatments for parasites.	3.3
f.	Disinfect pens and equipment.	3.3
g.	Treat pigs for scours.	3.3
h.	Dispose of animal wastes without causing environmental problems.	3.2
i.	Disinfect boots and clothing.	3.2
j.	Select and use sanitation products effectively.	3.2
k.	Follow state health requirements.	3.1
l.	Cull and isolate sick animals.	3.1
m.	Vaccinate pigs.	3.0
n.	Operate sprayers and mix spray for external parasite control.	3.0
o.	Mix wormers into feed and feed safely.	3.0

	p.	Disinfect navels of pigs.	2.9
	q.	Mix liquid wormers.	2.4
	r.	Fill and discharge liquid manure wagon.	2.1
3.	Market animals.		2.9
	a.	Determine the proper weight and quality of hogs to market.	3.5
	b.	Handle hogs to minimize bruises and shrink.	3.5
	c.	Select the market which will provide maximum return.	3.4
	d.	Estimate weight of hogs.	3.3
	e.	Sort and mark hogs for market.	3.3
	f.	Evaluate method of marketing (grade and yield, live weight, etc.).	3.2
	g.	Interpret market reports from newspaper, radio or TV.	3.1
	h.	Estimate the value of meatiness in a carcass.	3.1
	i.	Select a hauler for safe and careful handling.	3.1
	j.	Identify and justify economics of marketing at various weights.	3.1
	k.	Identify and use market trends and cycles in marketing.	3.0
	l.	Estimate market grades of hogs.	2.9
	m.	Evaluate carcass cut out information.	2.9
	n.	Follow proper business procedures in marketing.	2.9
	o.	Interpret marketing receipts.	2.8
	p.	Gather and use outlook information.	2.7
	q.	Obtain and use futures market information.	2.7
	r.	Interpret test station data.	2.7
	s.	Operate scales and maintain scales.	2.6
	t.	Figure shrinkage on lots of hogs marketed.	2.5
	u.	Make futures market contacts when profitable.	2.3
	v.	Advertise for purebred hogs.	2.0
	w.	Interpret and use pedigrees on breeding stock purchases and sales.	2.0
4.	Provide for proper feeding and nutriton.		2.9
	a.	Determine the nutrient requirements of different ages, sex, kind, and weight of swine.	3.5
	b.	Determine proper feeding and watering space requirements.	3.5
	c.	Calculate feed efficiency and costs of gain.	3.5
	d.	Identify animals with nutritional deficiencies.	3.4
	e.	Keep accurate production and feed records.	3.4
	f.	To recognize the quality characteristics of grains and other feeds.	3.3
	g.	Determine when to change composition of rations based on poor performance or cost.	3.2
	h.	Determine the effects of feed additives.	3.2

i.	Determine mineral requirements needed for a ration.	3.2
j.	Determine the correct feed preparation and feed form for best performance at minimum cost.	3.2
k.	Adjust self-feeders.	3.2
l.	Interpret the information on a feed tag.	3.1
m.	Calculate total ration costs.	3.1
n.	Determine vitamin requirements needed for a ration.	3.1
o.	Operate scales accurately.	3.1
p.	Interpret feed standard tables.	3.0
q.	Identify and make use of the factors affecting the value and palatability of feeds.	3.0
r.	Determine amounts of feed additives to add to a mix and the cost of this additive.	3.0
s.	Interpret feed analysis reports.	3.0
t.	Install and adjust waterers.	3.0
u.	Know the upper and lower limits of certain feeds to include in a ration.	2.9
v.	Formulate a balanced ration by the Pearson square or other methods.	2.9
w.	Calculate nutrient cost per unit.	2.9
x.	Interpret results of feeding experiments.	2.9
y.	Observe and handle feed and equipment safely.	2.9
z.	Find and understand state and federal feed laws.	2.9
aa.	Formulate a least cost or least time ration.	2.8
bb.	Keep inventory reports.	2.8
cc.	Determine substitution rates and substitute feedstuffs in rations.	2.7
dd.	Determine different handling properties of grains and other feeds.	2.7
ee.	Identify storage factors to maintain quality of feeds and prevent contamination of harmful substances.	2.7
ff.	Operate and service grinding and mixing equipment.	2.6
gg.	Clean equipment and area used for preparing feeds.	2.6
hh.	Select proper feed grinding and mixing equipment.	2.5
ii.	Compute proper mixer batch quantities.	2.5
jj.	Operate and service bulk handling equipment.	2.5
kk.	Estimate amounts of materials by volume.	2.5
ll.	Complete forms necessary in mixing and handling formulated feeds.	2.5
mm.	Set metering regulators.	2.4
nn.	Operate the feed grinder and mixer.	2.3
5.	Keep necessary records.	3.0
a.	Use records to improve the swine enterprise.	3.5

b.	Enter figures into records properly.	3.4
c.	Develop short and long term goals.	3.3
d.	Interpret and develop a profit and loss statement.	3.1
e.	Complete an inventory.	3.1
f.	Set up and maintain breeding, farrowing, labor, and feed records.	3.1
g.	Determine a net worth statement.	3.1
h.	Develop short and long term budgets.	3.0
i.	Analyze complete enterprise analysis records.	2.9
j.	Identify data to keep in records.	2.7
k.	Develop an identification system for records.	2.7
l.	Operate calculators.	2.6
m.	Determine freight costs.	2.4
6.	Practice safety procedures.	3.1
a.	Sort and load hogs safely.	3.4
b.	Maintain equipment to prevent injury.	3.3
c.	Operate feed handling equipment properly and keep all protective shields in place.	3.3
d.	Ground all electrical equipment to prevent shock.	3.3
e.	Read and use operator manuals when installing or operating equipment.	3.3
f.	Store disinfectants, wormers, and other medications safely.	3.2
g.	Handle boars during breeding without injury.	3.1
h.	Handle sows with suckling pigs safely.	2.8
i.	Keep a record of accidents and needed cautions.	2.3
7.	Practice good personal and human relations with employees and the general public.	3.2
a.	Make decisions when necessary.	3.7
b.	Be a good listener.	3.7
c.	"Get along" with people.	3.7
d.	Communicate effectively.	3.6
e.	Follow and provide instructions.	3.6
f.	Work irregular hours occasionally.	3.6
g.	Develop self confidence.	3.6
h.	Cooperate with fellow workers.	3.4
i.	Delegate responsibility when necessary.	3.4
j.	Sell yourself and the firm where you are employed.	3.3
k.	Identify factors that make for job success and satifaction.	3.3
l.	Give needed advice diplomatically.	3.2
m.	Direct employees.	3.2
n.	Meet people easily.	3.1
o.	Work under stress.	3.1
p.	Evaluate performance continually.	3.1
q.	Dress appropriately for the job.	3.0

r.	Remember names and faces.	2.9
s.	Judge management and production potentials of people.	2.9
t.	Conduct group meetings or tours.	2.1

CORN PRODUCERS

Other Titles: Cash Grain Farmer, Grain Farmer, Farmer, Corn Grower.

Job Description:

Plants, cultivates, and harvests corn for cash sales. Selects and buys type and amount of seed to be grown, taking into consideration local growing conditions and market demands. Operates equipment to plow, disk, harrow, and fertilize ground for planting, and to plant grain. Plans harvesting, considering ripeness and maturity of grain, studies weather conditions, and operates corn-harvesting equipment. Sells corn or stores it for future sales.

Competencies Identified and Validated

N = 38*

Competencies	Weighted Mean**
1. Opportunities.	2.5
a. Recognize advantages and disadvantages of corn production.	2.9
b. Interpret the trends in corn production.	2.8
c. Recognize the importance of corn production in daily living.	2.4
d. Identify the special commercial and industrial uses of corn.	2.3
e. Identify occupational opportunities related to corn production.	2.3
2. Seed selection.	3.0
a. Select the desired seed corn considering maturity, harvest-ability, disease resistance, lodging resistance, insect resistance, and yield level.	3.7
b. Interpret planting charts on the seed corn bag to establish proper planter plate selection.	3.5
c. Read and evaluate the tag on a bag of seed corn.	3.4
d. Calculate the number of bushels (units) of seed corn needed to plant a fixed number of acres at various population levels.	3.3

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* Responses from 38 Corn Producers representing 5 states in the principle corn producing area of the United States. Survey conducted by the Department of Agricultural Education, University of Nebraska, Lincoln, Nebraska 68583.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

e.	Determine the length of maturity of various hybrids sold by an individual seed corn company.	3.2
f.	Identify the materials used to treat seed corn and explain the purpose of treatment.	2.7
g.	Identify the parts of corn kernels and discuss functions of each part.	2.2
h.	Determine where on the corn ear the different size seed were obtained: small rounds, flats, large rounds, and culls.	2.0
3.	Seedbed preparation.	3.0
a.	Prepare desirable seedbed for corn.	3.5
b.	Identify the characteristics of a good seedbed.	3.1
c.	Recognize the opportunities of combining pest control and fertilizer application with seedbed preparation.	2.9
d.	Compare the relative advantages of minimum and conventional tillage systems.	2.9
e.	Recognize the tillage system used in seedbed preparation.	2.8
4.	Planting methods and practices.	2.8
a.	Calculate the actual seeding rate per acre based on desired final plant population and estimate mortality rate.	3.4
b.	Describe the effect of planting date, row spacing and plant population on yield.	3.1
c.	Explain the opportunities of combining pest control and fertilizer application with planting operations.	2.9
d.	Plant corn.	2.9
e.	Identify types of planting equipment.	2.6
f.	Compare drill, hill drop and check planting.	2.3
g.	Calendarize the home farm corn acreage.	2.2
5.	Fertilizer rates and application.	3.2
a.	Determine fertilization rates required for maximum yield or maximum return per fertilizer dollar.	3.5
b.	Recognize the effect of nutrient levels and fertilizer placement on yield and quality of corn.	3.4
c.	Identify nutrient deficiency symptoms in corn.	3.3
d.	Develop a farm fertilization program for corn.	3.2
e.	Apply fertilizer.	3.2
f.	Describe the nutrient requirements for corn.	3.0
g.	Describe the different methods of fertilizer application for corn.	2.7

6.	Pests - weeds, insects, and disease.	3.1
a.	Control weeds, insects, and diseases of corn on home enterprise.	3.5
b.	Identify the major corn pests on plants and in grain.	3.1
c.	Select cultural and chemical control practices for corn pests.	3.1
d.	Identify pest damage on corn.	2.9
e.	Estimate the economic loss due to reduced yield, increased harvesting loss, or reduced quality that can be attributed to corn pests.	2.9
7.	Harvesting and storing.	3.2
a.	Determine harvesting losses of corn and make the necessary machine adjustments.	3.6
b.	Properly harvest corn.	3.6
c.	Determine the stages of maturity for corn and the proper time of harvesting for silage and for grains.	3.3
d.	Identify and select the storage facilities and equipment needed for various methods of corn harvest (include dryer).	3.3
e.	Select a harvesting and storage system for corn based on efficiency and economy.	3.3
f.	Determine the moisture content of harvested corn.	3.2
g.	Calculate the volume of a structure needed to store a certain number of bushels of corn.	2.8
h.	Treat stored corn for pest control.	2.8
8.	Marketing.	2.7
a.	Market corn to the best advantage.	3.5
b.	Locate market outlets for corn.	3.1
c.	Determine market grade requirements for corn.	2.8
d.	Discount the price of corn for test weight, moisture and damage.	2.7
e.	Collect and interpret corn market information.	2.7
f.	Select the month when it would be most profitable to market corn.	2.7
g.	Calculate corn shrinkage.	2.6
h.	Explain how and where local corn prices are set.	2.5
i.	Describe the supply and demand for corn.	2.5
j.	Identify several sources of corn market information.	2.4

9.	Production economics.	3.0
a.	Keep and analyze production records for corn.	3.2
b.	Budget the annual cost and returns in corn production.	3.1
c.	Set realistic goals for a corn production enterprise.	3.0
d.	Analyze the economic features of various cultivation practices used in corn production.	2.9
e.	Calculate various efficiency factors in corn production.	2.8

FORAGE PRODUCER

Other Titles: Farmers, Forage Crop Grower.

Job Description:

Plants, cultivates, and harvests forages for cash sales and/or feeding to livestock. Selects and buys type and amount of seed to be grown, taking into consideration local growing conditions and market demands. Operates equipment to plow, disk, harrow, and fertilize ground for planting. Plans harvesting, considering ripeness and maturity of plants and weather conditions, and operates forage harvesting equipment. Sells crop or stores it for future sales.

Competencies Identified and Validated

N = 31*

Competencies		Weighted Mean**
1.	Opportunities.	2.6
a.	Select the correct forage for a specific purpose on a given farm.	3.3
b.	Estimate the economic value of an acre of forage as hay, silage, or pasture.	3.0
c.	Explain the comparative advantages of forages in a farming program.	2.8
d.	Categorize forages as annuals, biennials, or perennials and as either grasses or legumes.	2.6
e.	Identify the specialized uses of various forage crops such as birdsfoot trefoil, sweetclover, crown vetch, reed canary grass, and sudangrass.	2.5
f.	Interpret the trends of forage production in the United States, in your home state, and your county.	2.1
g.	Determine the major forage crops grown in the United States and in your home state.	2.1
h.	Identify occupational opportunities that are related to forage production.	2.1
2.	Forage identification and seed selection.	[illegible]
a.	Select high quality seed.	[illegible]
b.	Select adapted varieties of forage crops.	3.2
c.	Identify grass and legume seeds of forage crops grown locally.	2.8

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* Responses from 31 Forage Crop Producers. Survey conducted by the Department of Agricultural Education, University of Nebraska, Lincoln, Nebraska 68583.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

d.	Identify grass and legume seedlings.	2.7
e.	Explain the purpose of vernalization and sacrification in forage crop production.	2.0
3.	Tillage and planting.	3.2
a.	Obtain a good stand of a new seeding.	3.6
b.	Determine seeding rates and depth of planting.	3.4
c.	Evaluate the old stand of forage and determine the practices and procedure needed to improve the stand.	3.2
d.	Describe the tilling practices required for the establishment and renovation of temporary, rotation, and permanent pastures.	3.1
e.	Identify equipment and methods used in establishing forage stands.	3.1
f.	Analyze the comparative costs of different production methods of producing forages.	3.1
g.	Compare broadcast seeding to drilling.	2.5
4.	Fertilizer and lime.	3.1
a.	Calibrate fertilizing equipment.	3.4
b.	Make fertilizer recommendations for forages from a soil test report.	3.3
c.	Recognize major plant food deficiency symptoms in growing forages.	3.2
d.	Outline the steps in forage improvement, fertilization, and liming.	3.2
e.	Develop a fertilization program for small grains and subsequent forage crops.	3.1
f.	Determine the optimum pH range for forage production.	2.9
g.	Recognize the different methods for applying fertilizer on forages.	2.8
5.	Pests - weeds, insects, diseases.	3.1
a.	Summarize the precautions which should be followed when using pesticides.	3.4
b.	Calibrate pesticide applicators.	3.3
c.	Choose proper pesticides to be used on forages.	3.2
d.	Recognize the residue limitations or restrictions on forage pesticides.	3.2
e.	Distinguish between insect, disease and weed damage to forage plants.	3.1
f.	Identify a potential damaging insect, weed or disease problem.	2.9
g.	Estimate the economic loss due to reduced yield, increased harvesting loss, or reduced quality that can be attributed to forage pests.	2.9
h.	Explain the importance of crop rotation in the control of forage pests.	2.9

i.	Describe the practices being used in the community to control forage pests and evaluate their effectiveness.	2.7
6.	Harvesting, storage, and marketing.	2.8
a.	Recognize possible bloat problems and recommend preventative measures.	3.3
b.	Determine the optimum moisture content for beginning machine harvest to insure proper storage and preservation.	3.3
c.	Adjust machines used in harvesting forages and forage seed.	3.3
d.	Recognize the effects of grazing too early, overgrazing, or clipping on forage fields.	3.2
e.	Recognize the proper stage of maturity to harvest for highest quality forage.	3.2
f.	Use machinery efficiently to minimize harvest time.	3.2
g.	Identify safety hazards present in harvesting, transporting and storing forages.	3.1
h.	Determine the value of forages in a crop rotation.	3.0
i.	Evaluate the quality of forages being fed.	3.0
j.	Determine the relative nutrient value of silage, green chop, and haylage.	2.9
k.	Evaluate the alternative costs of different forage harvesting and storing methods.	2.9
l.	Compute the carrying capacity of pastures.	2.9
m.	Explain the need for root reserves and/or leaf area for proper regrowth.	2.8
n.	Determine efficiency gained by rotational grazing patterns within a field.	2.8
o.	Recognize common forage problems: winter-kill, disease, herbicide carryover, etc.	2.8
p.	Explain the criteria for quality forages: odor, color, leafiness, and freedom from foreign material.	2.7
q.	Use weather information to reduce risk of rain damage in forage harvesting.	2.6
r.	Select the month when it would be most profitable to market forages.	2.6
s.	Determine the relative advantages of conditioning forages.	2.6
t.	Condition hay.	2.6
u.	Explain the comparative advantages of various forage storage structures.	2.6
v.	Compute tonnage of forage in various shaped storage structures.	2.5
w.	Identify and explain the operating principles of forage handling and storage equipment.	2.5
x.	Describe the problems involved in marketing forages.	2.4

	y.	Describe the commercial products used for storage and their methods of application.	2.4
	z.	Determine the market grades of hay.	2.4
	aa.	Explain how local prices for forages are established in the local community.	2.3
7.	Production economics.		2.6
	a.	Determine the value of forage crops marketed through livestock.	2.9
	b.	Calculate various efficiency factors in forage production.	2.8
	c.	Determine realistic goals in forage production.	2.7
	d.	Budget the costs and returns on a forage crop using sample records.	2.6
	e.	Justify the production of forages on Class I and Class II land.	2.5
	f.	Develop equitable rental or leasing arrangements for pasture and forage cropland.	2.5
	g.	Determine government cost-sharing on pasture improvement projects.	2.5
	h.	Determine results obtained from the modification or adoption of new practices and compare these results with those obtained from experimental studies and local test plots.	2.4

SMALL GRAIN PRODUCERS

Other Titles: Farmer, Cash Grain Grower, Grain Farmer.

Job Description:

Plants, cultivates, and harvests one or more small grain crops, such as barley, oats, rice, or wheat for cash sales. Selects and buys type and amount of grain to be grown, taking into consideration local growing conditions and market demands. Operates equipment to plow, disk, harrow, and fertilize ground for planting, and to plant grain. Plans harvesting, considering ripeness and maturity of grain and weather conditions and operates grain-harvesting equipment, sells grain or stores grain for future sale.

Competencies Identified and Validated

N = 31*

Competencies	Weighted Mean**
1. Introduction.	2.7
a. Select the correct type of small grain for a given farm situation.	3.2
b. Recognize the advantages and disadvantages of small grain production.	2.8
c. Identify the specialized uses of oats, barley, wheat, multi-grain, rye, triticale, grain sorghum and other small grain.	2.7
d. Interpret the trends of small grain production.	2.7
e. Identify occupational opportunities related to small grain production.	2.4
f. Recognize the importance of small grains in daily living.	2.3
2. Seed selection.	2.7
a. Read and evaluate a seed tag.	3.3
b. Adjust seeding rates depending on the quality of the lot selected.	3.2
c. Recognize the requirements for seed certification.	2.9
d. Calculate the price per pound of pure live seed.	2.8
e. Evaluate and select seed depending on the quality of the lot selected.	2.8

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* Responses from 31 Small Grain Producers representing states in the principle small grain producing areas in the United States. Survey conducted by the Department of Agricultural Education, University of Nebraska, Lincoln, Nebraska 68583.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	f. Clean and treat seeds for planting and/or sale.	2.7
	g. Identify the parts of small grain seeds and explain the function of each part.	2.1
	h. Operate a seed germinator.	1.9
	i. Quote the State Seed Law.	0.9
3.	Seedbed preparation.	3.0
	a. Prepare a good seedbed.	3.3
	b. Identify the characteristics of a good seedbed.	3.0
	c. Compare different depths of planting for various small grains.	2.9
	d. Recognize tillage equipment to be used in seedbed preparation.	2.9
	e. Analyze the comparative costs of different production methods.	2.8
4.	Planting.	2.8
	a. Calibrate seeding equipment.	3.2
	b. Recommend the proper seeding rate and adjust that rate for seed quality.	3.0
	c. Explain the value of seeding early.	2.9
	d. Seed small grain.	2.8
	e. Identify the types of planting equipment.	2.6
	f. Select planting mixtures of small grains to be used as a nurse crop.	2.6
	g. Compare drilling to broadcast seeding.	2.4
5.	Fertilizer rates and applications.	2.9
	a. Develop a fertilization program for small grains and the subsequent forage crop.	3.0
	b. Make fertilizer application to small grains.	3.0
	c. Identify nutrient deficiency symptoms in small grains.	2.9
	d. Recognize the value of fertilizer in the yield of grain and straw.	2.9
	e. Describe the nutrient requirements for small grains.	2.9
	f. Recognize the effect of fertilizer rates on tillering and lodging.	2.9
6.	Pests - weeds, insects, and diseases.	2.5
	a. Identify insect and disease pests responsible for significant economic loss in small grain production.	2.7
	b. Recommend cultural and chemical practices for broadleaf and grassy weeds control in small grains.	2.5

	c.	Recommend cultural and chemical practices for insect and disease control in small grains.	2.5
	d.	Control pests of small grains on home farm or on school land laboratory.	2.4
7.	Harvesting and storing.		2.5
	a.	Measure harvesting losses and determine the necessary machine adjustments.	3.2
	b.	Determine the moisture content of harvested grain.	2.9
	c.	Select a harvesting method and storage system based on efficiency and economy.	2.9
	d.	Recognize the relative advantages and disadvantages of harvesting small grains - silage, high moisture grain, or dry grain.	2.5
	e.	Discuss the storage facilities needed for various harvesting methods.	2.5
	f.	Identify the proper state of grain development for optimum silage production.	2.4
	g.	Compare windrow harvesting to harvesting the grain standing.	2.1
	h.	Identify the steps in quality silage production.	1.9
8.	Marketing.		2.7
	a.	Market small grain to the best advantage.	3.4
	b.	Determine market grade requirements for various small grains.	2.8
	c.	Select the months when it would be most profitable to market various small grains.	2.8
	d.	Discount the price of small grains for test weight, moisture, and damage.	2.7
	e.	Locate market outlets for small grains.	2.7
	f.	Collect and interpret grain market information.	2.7
	g.	Identify several sources of market information.	2.7
	h.	Calculate grain shrinkage.	2.6
	i.	Explain influence of supply and demand on price of small grain.	2.5
	j.	Explain where and how local market prices are set.	2.5
9.	Production economics.		2.7
	a.	Budget the annual costs and returns for various small grains.	2.8
	b.	Keep and analyze production records for the various small grains.	2.8
	c.	Calculate various efficiency factors in producing small grains.	2.7
	d.	Set realistic goals for a grain production enterprise.	2.7

CROP PRODUCERS - GENERAL

Other Titles: Farmer, Grain Farmer, Cash Grain Grower.

Job Description:

Plants, cultivates, and harvests one or more grain crops, such as barley, corn, rice, soybeans, or wheat for cash sales. Selects and buys type and amount of grain seed to be grown, taking into consideration local growing conditions and market demands. Operates equipment to plow, disk, harrow, and fertilize ground for planting, and to plant grain. Plans harvesting, considering ripeness and maturity of grain and weather conditions and operates grain harvesting equipment. Sells grain or stores grain for future sales.

Competencies Identified and Validated

N = 30*

Competencies	Weighted Mean**
1. Insects.	2.8
a. Identify the major crop pests of corn, soybeans, small grains, and forages.	3.2
b. Recommend cultural and chemical methods of insect control.	3.2
c. Identify plant damage due to insects and estimate the percentage of infestation.	3.0
d. Recommend control methods for insect damage in stored grain.	2.9
e. Identify insects which damage stored grain.	2.7
f. Classify insect pests as chewing, sucking, internal feeding, insects.	2.5
g. Identify insect pests that are irritants, disease carriers, or harmful to man or livestock.	2.5
h. Trace the life cycle of major crop insects.	2.2
2. Diseases.	2.9
a. Identify the major diseases of corn, soybeans, small grains, and forages.	3.2
b. Recommend cultural practices and chemicals that will help control specific plant diseases.	3.0

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* Responses from 30 Crop Producers representing states in the principle cash crop producing area of the United States. Survey conducted by the Department of Agricultural Education, University of Nebraska, Lincoln, Nebraska 68583.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	c.	Identify the agents and conditions that cause plant diseases and the plants that are affected.	2.8
	d.	Estimate the economic loss due to decreased yield, increased harvesting loss or reduced quality caused by diseases.	2.7
3.		Weeds.	2.7
	a.	Identify plants that are poisonous to livestock or irritants to man.	3.2
	b.	Recommend available chemical control for specific weed problems in major economic crops.	3.1
	c.	Recommend cultural practices which aid in weed control.	3.1
	d.	Identify primary and secondary noxious weeds.	2.9
	e.	Estimate yield decrease due to weeds.	2.8
	f.	Describe ways that weeds are harmful, i.e., irritants of man, poisonous, or reduce feeding value.	2.5
	g.	Determine ways that common weeds spread and reproduce.	2.5
	h.	Identify other common weeds in the area.	2.3
	i.	Classify weeds as annuals, biennials, perennials.	2.3
	j.	Define "weed".	1.9
4.		Cultural control.	2.8
	a.	Describe the effect of crop rotation, crop residue, and tillage on control of agronomic pests.	3.0
	b.	Describe the effect of fertilization and planting practices on the control of agronomic pests.	3.0
	c.	Compile the cost and consider the timeliness of control of agronomic pests by cultural methods.	2.8
	d.	Identify insect and disease pests that can be prevented or controlled by varietal resistance.	2.6
5.		Chemical control.	3.1
	a.	Store, handle, and apply chemicals effectively and safely.	3.5
	b.	Apply first-aid to victims of chemical contact.	3.5
	c.	Discuss the factors that affect application rate per acre and calibrate the application equipment.	3.2
	d.	Select a specific chemical and application method for the control of a specific agronomic pest.	3.2

e.	Determine the rate of application needed for the desired pest control.	3.2
f.	Calculate the cost of chemical pest control for specific crops.	3.0
g.	Describe the selectivity of a specific chemical, its effect on man and the environment and its residual qualities.	3.0
h.	Discuss the increase in crop production due to chemical pest control.	2.9
i.	Identify plant symptoms of chemical overdose.	2.8
j.	Describe the effect of a specific chemical on a pest. For example, describe the way a chemical kills: soil sterilizer, stomach poison, contact killer, or growth stimulant.	2.6

ANIMAL TECHNICIAN

Other Titles: Animal Health Technician, Veterinary Assistant.

Job Description:

An Animal Technician is a person knowledgeable in the care and handling of animals, and the basic principles of normal and abnormal life processes, and in routine laboratory and animal health care procedures. He or she is primarily an assistant to veterinarians, biological research workers, and other scientists. Examples of the type of work animal technicians perform are:

1. Veterinary Assistant
   a. Companion Animal Practice (dogs, cats, pets).
   b. Meat Animal Practice (beef, swine, sheep, etc.).
   c. Mixed Practice (a and b above).
2. City, State, and Federal Animal Health Agencies
3. Research and development for government and private industry.

Competencies Identified and Validated

N = 52*

Competencies		Weighted Mean**
1.	Radiology.	3.6
a.	Be able to properly develop radiographic films using manual and/or automatic methods.	3.9
b.	Load and unload cassettes.	3.9
c.	Take proper care of developing solutions and film.	3.8
d.	Understand anatomy in order to properly position small and large animals for radiographic procedures.	3.6
e.	Be able to operate various x-ray machines, setting up effective technique charts.	3.4
f.	Guard against unnecessary radiation.	3.4
g.	Be able to administer contrast agents in the proper amount and correct routes.	3.1
h.	Know how to use different types of contrast medias.	2.9

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* Responses from 52 Animal Technicians throughout the United States. Survey conducted by the Veterinary Technology Department, University of Nebraska School of Technical Agriculture, Curtis, Nebraska 69025.

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2.	Restraint.	3.7
a.	Be able to restrain all types of domestic animals (large and small).	3.8
b.	Be able to use different restraint equipment.	3.7
c.	Be able to determine proper type and amount of restraint for a given situation.	3.5
3.	Animal science and production.	3.2
a.	Have rapport with the animal patients and be able to handle them for treatment, etc.	3.8
b.	Apply good husbandry practices in handling animals.	3.5
c.	Feed animals with a minimum of supervision (correct diet, etc.).	3.4
d.	Identify the different breeds of animals.	3.2
4.	Sanitation and animal housing management.	3.3
a.	Be able to apply sound sanitation principles in the upkeep of a veterinary clinic or hospital.	3.3
b.	Handle and give nursing care for the different species of animals.	3.5
c.	Keep syringes and other equipment ready for use.	3.5
d.	Be able to perform different types of sterilization.	3.4
e.	Supervise and take care of the kennel and/or large animal holding facilities.	3.4
f.	Be able to give proper nursing care to all animals, (bandaging and treatment).	3.3
g.	Cheerfully do the necessary menial jobs.	3.3
h.	Be able to use different disinfectants.	3.0
5.	Animal nutrition.	2.2
a.	Understand the fundamental principles of animal nutrition, digestion and utilization of feed.	2.6
b.	Balance rations for large and small animals using TDN, Pearson Square, and Net Energy methods.	1.8
6.	Written and oral communications.	3.3
a.	Talk to clients over the phone satisfactorily.	3.9
b.	Talk to clients in the hospital or clinic.	3.9
c.	Talk on the 2-way radio satisfactorily.	2.7
d.	Write satisfactory business correspondence.	2.7
7.	Veterinary orientation.	3.3
a.	Understand procedures for handling rabies suspects and specimens.	3.8

b.	Be able to converse adequately with clients.	3.8
c.	Understands his/her role in veterinary medicine.	3.7
d.	Take down adequate case histories.	3.7
e.	Take temps, pulse, and respiration.	3.7
f.	Be able to fill out health certificates.	3.1
g.	Properly administer an enema.	3.0
h.	Intelligently assist in tests for breeding soundness.	2.8
i.	Be able to fill out Brucellosis test and vaccination forms.	2.8
j.	Be able to fill out TB test forms.	2.5
8.	Equipment and instruments.	2.7
a.	Identify surgical instruments.	3.6
b.	Identify and have a knowledge of large animal equipment and instruments.	3.0
c.	Set up and operate an electronic tooth scaler.	2.5
d.	Be able to properly care for and stock an ambulatory vehicle.	2.5
e.	Operate an E.C.G. machine.	1.8
9.	Anesthesiology.	3.5
a.	Exercise proper care of anesthetized patients.	3.9
b.	Be able to monitor the patient's vital signs and depth of anesthesia.	3.7
c.	Be familiar with emergency procedures and drugs.	3.6
d.	Be able to operate and care for the different types of anesthetic machines including respirators.	3.2
e.	Be able to administer all forms of anesthetics for local, regional, and general anesthesia in all species of domestic animals.	3.2
10.	Surgical preparation.	3.7
a.	Prepare the operating room.	3.8
b.	Prepare an animal for surgery.	3.8
c.	Prepare a surgical pack and sterilize it.	3.8
d.	Prepare himself to be an aseptic assistant for surgery.	3.7
e.	Be able to identify surgical instruments.	3.6
f.	Give post-operative care under the veterinarian's supervision.	3.6
g.	Prepare himself to be a non-sterile assistant for surgery.	3.4

11.	Pharmacology.	3.0
a.	Know the classification, uses, and means of administration of various drugs and biologicals.	3.2
b.	Identify and understand the different kinds of biological products.	3.1
c.	Restock a practice vehicle and/or take care of the drug inventory.	3.1
d.	Know the metric and avcirdupois systems of measurements and the conversion factors between them.	2.9
12.	Clinical pathology.	3.3
	Hematology	
a.	Do a WBC.	3.9
b.	Do a hematocrit.	3.8
c.	Make blood smear and use proper stain.	3.8
d.	Draw blood samples from all collection sites in all species.	3.7
e.	Collect blood samples in tubes with correct anticoagulant.	3.7
f.	Do a hemoglobin determination.	3.6
g.	Do a RBC.	3.5
h.	Do WBC differential.	3.5
i.	Do a sedimentation rate.	3.4
j.	Determine RBC morphology.	3.2
k.	Calculate blood cell indices.	2.9
l.	Do reticulocyte stain and count.	2.9
m.	Determine plasma fibrinogen.	2.7
n.	Do platelet estimation from blood smear.	2.7
o.	Do Lee-White clotting time.	2.4
	Urinalysis	
a.	Perform specific gravity.	3.7
b.	Perform gross examination of urine.	3.7
c.	Catheterize or collect urine from various species of animals.	3.5
d.	Do microscopic examination on urine.	3.5
e.	Do various chemical determination.	3.5
	Parasitology	
a.	Do fecal floatation.	3.7
b.	Identify internal parasites from eggs, etc.	3.7
c.	Perform gross examination of feces.	3.6
d.	Check for external parasites.	3.6
e.	Check for blood parasites.	3.5
f.	Understand the principles of parasite control.	3.5
g.	Perform Hematest.	3.0

		Blood Chemistry	
	a.	Collect blood appropriately for various test procedures.	3.8
	b.	Perform various calculations correctly.	3.7
	c.	Establish and maintain quality control for tests.	3.5
	d.	Take proper care of glassware and equipment.	3.4
	e.	Know chemistry terms and equipment.	3.0
	f.	Perform test by Accustat, Serometer, Ames, Unimeter, etc.	3.0
		Miscellaneous-Clinical Pathology	
	a.	Handle a microscope properly.	3.9
	b.	Prepare all specimens for shipment.	3.8
	c.	Assist with semen evaluation exams.	2.9
	d.	Perform Brucellosis card test.	2.7
	e.	Run tests on various body fluids, exudates, transudates, spinal fluid.	2.6
13.		Microbiology.	3.2
	a.	Practice correct sterile techniques.	3.8
	b.	Perform sensitivity tests.	3.5
	c.	Isolate, culture, and identify micro-organisms.	3.5
	d.	Perform stains on micro-organisms and identify microscopically.	3.2
	e.	Perform and evaluate chemical and biological tests for identification.	3.2
	f.	Be able to prepare microbiological media.	2.8
	g.	Perform limited histological examination.	2.3
14.		Necropsy.	3.5
	a.	Handle rabies suspect material and forms.	3.8
	b.	Select, pack, and send tissues and organs to laboratories for examination.	3.6
	c.	Handle and prepare tissue and organ specimens for shipment.	3.6
	d.	Be able to apply proper necropsy techniques and principles.	3.2
	e.	Follow correct necropsy procedures in all species.	3.1
15.		Public health.	2.8
	a.	Be aware of zoonotic diseases.	2.8
	b.	Learn inspection enforcement procedures and the relationship of inspection to public health.	2.8

16.	Personality and character traits.	3.5
a.	Have interest in this work.	3.9
b.	Be educated as required by a technician.	3.8
c.	Have intelligence, ability to learn, solve problems.	3.8
d.	Have knowledge of the field.	3.8
e.	Be persistant - finishing what job he/she starts.	3.8
f.	Develop self-reliance - standing on own feet, make decisions.	3.8
g.	Be cooperative - get along well with others.	3.8
h.	Be diligent - willing to put forth the necessary effort.	3.7
i.	Develop deliberateness - ability to plan ahead.	3.7
j.	Have patience - willing to take the necessary time to work things out.	3.7
k.	Get to work on time.	3.7
l.	Be willing to work the necessary hours the practice is open.	3.7
m.	Have stability, maintaining same job and interests.	3.6
n.	Utilize spare time.	3.6
o.	Be loyal - opinion of people of institutions associated with.	3.6
p.	Avoid absenteeism - at work every day.	3.5
q.	Be aware of appearance, manners.	3.5
r.	Practice honesty - personal integrity.	3.3
s.	Be willing to do menial chores.	3.3
t.	Develop temperance - do not go to extremes.	3.2

FARRIER

Other Titles: Horseshoer, Shoer, Blacksmith.

Job Description:

A Farrier is a skilled craftsman who performs the following major functions: Prepares feet and hooves of horses, mules, and burros, for shoeing; forms and shapes manufactured or handmade shoes; fits and fastens metal shoes to the hooves of horses, mules and burros; handles animals safely and humanely; secures, utilizes, and maintains hand tools, equipment, and supplies needed for farriery work; diagnoses and corrects foot and gait problems through corrective shoeing; manages scheduling, record keeping, billing, collections, taxes, and other aspects of the farrier business. A Farrier secures, applies, and keeps updated in knowledge of: the anatomy of equine feet and legs, techniques in shoeing, use of horseshoeing tools, equipment and supplies, and customer relations. The Farrier works outdoors or in barns, shops, or other enclosures and is semi-protected from the weather; he or she possesses the strength and endurance to work in a stooping position for long periods while supporting an animal's leg; the person exerts independent judgment in determining work procedures, conforming to quality standards and in the complex shaping/angling functions using hand tools. Persons can become horseshoers by attending public college or vocational school courses, private schools, or working with a qualified farrier as an apprentice. Farriers are entrepreneurs who may work "on call," travel a "route," or work primarily at a ranch, a riding stable, a race track, or other horse-related businesses.

Competencies Identified and Validated

N = 36*

Competencies	Weighted Mean**
1. Gain a working knowledge of farriery.	3.5
a. Understand the anatomy and physiology of a horse's foot, pastern, and legs.	3.3
b. Recognize normal and abnormal flight of the foot, common errors in shoeing and their effects on foot and leg structures.	3.8
c. Know the safety practices in handling horses for shoeing.	3.7

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* Responses from 36 Farriers in 11 states. Survey conducted by Department of Agricultural Education, Auburn University, Auburn, Alabama 36830.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	d.	Understand the needs of horsemen.	3.2
	e.	Know metal types and temperatures.	2.8
2.	Secure farrier's equipment.		3.2
	a.	Maintain tools and equipment.	3.5
	b.	Assemble horseshoer tools and equipment.	3.4
	c.	Secure farrier supplies.	3.4
	d.	Select machine-made shoes.	2.7
3.	Use a forge and welder.		3.1
	a.	Build fires in the forge.	3.4
	b.	Make therapeutic shoes.	3.4
	c.	Make bar shoes.	3.3
	d.	Construct horseshoes from barstock.	3.0
	e.	Make brace for broken bones or deformities.	2.6
4.	Perform normal shoeing of a horse (shoes a horse flat).		3.8
	a.	Fit the shoe.	3.9
	b.	Secure the shoe to the hoof wall.	3.9
	c.	Prepare the foot.	3.9
	d.	Make a preliminary examination.	3.8
	e.	Select the shoe.	3.8
	f.	Remove old shoes.	3.7
	g.	Raise and hold the animal's feet for shoeing.	3.6
	h.	Inspect the newly shod animal.	3.5
5.	Practice corrective shoeing.		3.6
	a.	Construct a shoe or modify a factory shoe for treatment of problems.	3.7
	b.	Apply corrective shoes.	3.7
	c.	Inspect the newly shod animal standing and moving (gaits).	3.6
	d.	Diagnose foot problems.	3.6
	e.	Test for lameness.	3.6
	f.	Diagnose faulty gaits.	3.6
	g.	Diagnose conformation faults.	3.5
	h.	Apply treatment.	3.5
6.	Practice special shoeing.		2.9
	a.	Shoe quarterhorses (for shows, working or racing).	3.3
	b.	Shoe thoroughbreds.	3.1
	c.	Shoe standardbreds.	2.9
	d.	Shoe gaited horses.	2.9
	e.	Shoe hunters and jumpers.	2.9
	f.	Shoe draft animals (for show, work, or pulling).	2.7
	g.	Shoe polo horses.	2.6

7.	Handle the problem horse (refractory, vicious).	2.2
a.	Use shanks (lip chain).	2.8
b.	Use a twitch.	2.5
c.	Have tranquilizer administered by a veterinarian.	2.4
d.	Use a cuff and surcingle (for the front leg).	2.2
e.	Use a cuff and sheet bend on the tail (for the hind leg).	2.1
f.	Use scotch hobbles.	2.1
g.	Throw and tie the animal down (as a last resort).	1.8
h.	Use a shoeing stock.	1.6
8.	Manage the farrier business.	3.4
a.	Practice good customer relations.	3.8
b.	Schedule and keep appointments.	3.8
c.	Secure customers.	3.7
d.	Collect fees.	3.6
e.	Set up the business.	3.5
f.	Keep records.	3.4
g.	File taxes.	3.4
h.	Prepare and submit statements.	3.1
i.	Secure insurance.	3.0
j.	Contract for work.	2.7

DAIRY INSPECTOR

Job Description:

Persons in this occupation are largely responsible for quality control of raw milk. They inspect dairy farms from which milk is sold to make sure that certain municipal, state, and federal rules and regulations are being followed. Milk inspectors travel to the farms that ship milk to a particular dairy plant. At each farmstead, they check sanitary conditions in the dairy barn, the milkhouse and the area around the buildings to see that they are in keeping with the dairy plant's requirements and legal sanitary regulations. An inspection may involve the milk house, condition of milking and milk house equipment, manure disposal, fly control, and housing livestock other than dairy animals in the dairy barn. An inspector must foster goodwill among milk producers, procure milk for the dairy plant for which he works, keep the necessary records of inspection and make reports to farmers.

Competencies Identified and Validated

N = 33*

Competencies	Weighted Mean**
1. Have knowledge of milk composition.	2.9
a. Know water percentages.	3.4
b. Know butterfat content.	3.2
c. Know solids not fats (SNF).	3.0
d. Know mineral content.	2.4
e. Know vitamin D content.	2.3
2. Have general knowledge of the dairy industry.	3.3
a. Store milk.	3.9
b. Know problems associated with handling milking.	3.5
c. Transport milk.	3.8
d. Can market to wholesalers and retailers.	2.9
e. Reproduce animals.	[illegible]
(1) Colostrum.	[illegible]
(2) Gestation.	[illegible]
f. Animal nutrition.	2.5
(1) Fiber content.	[illegible]
(2) Protein content.	2.6
(3) Fat content.	2.6

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* Responses from 33 Dairy Inspectors in 30 states. Survey conducted by Department of Agricultural Education, North Carolina A & T State University, Greensboro, North Carolina 27411.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

(4) Roughages.	2.6
(5) Concentrates.	2.5
(6) Mineral content.	2.3
(7) Vitamin content.	2.3
(8) Carbohydrate content.	2.3
3. Know sanitation regulations and practices.	3.6
a. Know federal, state, and local regulations.	3.9
b. Know the proper sanitation for equipment and facilities.	3.9
c. Know disease carrying organisms found in milk.	3.7
d. Understand the use of chemicals.	3.6
e. Know preventive procedures to control insects and diseases.	3.5
f. Know how to treat animals for diseases and insects.	2.8
4. Have a knowledge of and be able to perform the following skills.	3.1
a. Understand and use good public relations.	3.9
b. Keep good records.	3.9
c. Understand the grades of milk.	3.7
d. Detect appearance and color of milk.	3.5
e. Microscopically identify foreign matter in milk.	2.9
f. Make bacterial counts.	2.6
g. Test for butterfat.	2.4
h. Test for diseases.	2.1

EGG INSPECTOR

Job Description:

An Egg Inspector determines proper classifications of eggs offered for sale that meet federal and state standards and requirements. The Egg Inspector makes sure eggs are properly graded and classed. He or she also explains and interprets laws governing grades of eggs for the public on the retail as well as wholesale levels. The Egg Inspector's duties require weighing, candling, checking packages for labeling, and initiating prosecution when necessary. The Inspector disseminates information to wholesalers and retailers on egg quality standards.

Competencies Identified and Validated

N = 34*

Competencies			Weighted Mean**
1.	Weigh eggs.		3.9
	a.	Know weights for small, medium, large, extra large, and jumbo eggs.	3.9
	b.	Determine egg grades such as A, B, etc.	3.9
2.	Candle eggs.		3.9
	a.	Check for meat spots.	4.0
	b.	Check for broken shells.	3.9
	c.	Check for blood spots.	3.9
	d.	Check for air bubbles.	3.7
3.	Package eggs.		3.5
	a.	Check to make sure eggs are washed before packaging.	4.0
	b.	Check to make sure eggs are put into egg cartons correctly.	4.0
	c.	Check egg cartons for proper labeling.	3.7
	d.	Check egg cartons for insects.	3.1
	e.	Check to make sure egg cartons are put into egg case correctly.	2.6
4.	Know state and federal regulations.		3.4
	a.	Know and understand state and federal regulations.	3.8
	b.	Interpret state and federal regulations for the wholesaler and retailer.	3.8

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* Responses from 34 Egg Inspectors in 26 states. Survey conducted by Department of Agricultural Education, North Carolina A & T State University, Greensboro, North Carolina 27411.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	c. Interpret state and federal regulations for the public.	3.2
	d. Recommend ways to correct the error of the retailer and wholesaler.	3.2
	e. Recommend prosecution for enforcement of federal and state regulations.	3.0
5.	Check transportation procedures.	3.2
	a. Check to make sure the temperature for the shipment of eggs is within the correct range.	3.6
	b. Check to make sure the egg cases are handled correctly.	3.3
	c. Check to make sure egg cases are not stacked too high.	2.7
6.	Check storage procedures.	3.6
	a. Check to make sure eggs are stored at a proper temperature.	3.7
	b. Check to make sure eggs are not stored too long a period of time.	3.7
	c. Check to make sure eggs are not stored in the direct rays of the sun.	3.4
7.	Maintain public relations.	3.2
	a. Develop confidence in egg quality program and its enforcement.	3.5
	b. Discuss egg quality with the wholesaler and retailer.	3.3
	c. Maintain favorable public contacts.	3.2
	d. Discuss advantages of buying graded eggs to the public.	2.9
8.	Understand the operation and maintenance of egg inspection equipment.	3.0
	a. Know how to operate egg candler.	3.5
	b. Know proper temperature of water for egg cleaner.	3.4
	c. Know how to operate and maintain egg grader.	[illegible]
	d. Know how to operate egg cleaner.	[illegible]
	e. Know how to operate egg crater.	2.5

POULTRY INSPECTOR

Job Description:

This person inspects dressed poultry according to U. S. Department of Agriculture grades; inspects live birds for diseases and general appearance; and inspects production facilities and processing plants for proper sanitation. He or she inspects wholesale and retail outlets to make sure they abide by federal, state and local regulations. Inspectors advise prosecution for companies which are in violation. They destroy birds which do not make the grade and make reports to supervisors.

Competencies Identified and Validated

N = 30*

Competencies	Weighted Mean**
1. Have general knowledge of the poultry industry.	3.0
a. Type of poultry.	3.3
b. Know which are white and which are dark meats.	3.2
c. Know importance of poultry as an agricultural enterprise.	2.8
d. Know average medium weights per bird.	2.7
2. Have knowledge of poultry nutrition.	1.8
a. Knowledge of poultry anatomy.	2.8
b. Knowledge of mixing rations.	2.1
c. Knowledge of percent protein in rations.	1.9
d. Knowledge of carbohydrates in rations.	1.9
e. Knowledge of vitamins in rations.	1.8
f. Knowledge of the costs of rations.	1.6
g. Knowledge of fiber content of rations.	1.6
h. Knowledge of fat content in rations.	1.6
i. Knowledge of mineral content in rations.	1.5
3. Have knowledge of poultry health, diseases, and parasites and their control.	2.8
a. Knowledge of vaccination program for poultry.	3.2
b. Knowledge of disinfectants and their use.	2.9
c. Knowledge of insecticides and their use.	2.9
d. Knowledge of preventative medicine.	2.7
e. Understand sanitation for poultry.	2.4

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* Responses from 30 Poultry Inspectors in 23 states. Survey conducted by Department of Agricultural Education, North Carolina A & T State University, Greensboro, North Carolina 27411.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

4.	Have knowledge of egg production.	2.2
a.	Knowledge and usage of culling.	2.4
b.	Knowledge of molting.	2.2
c.	Production of egg by hen.	2.0
d.	General appearance of bird.	2.0
5.	Have knowledge of breeding.	2.0
a.	Knowledge of general appearance.	2.6
b.	Knowledge of genetics.	2.0
c.	Knowledge of gestation period.	2.0
d.	Knowledge of the humidity requirements of eggs for hatching.	2.0
e.	Knowledge of egg temperature for hatching.	1.8
f.	Knowledge of broodiness of fowl.	1.8
6.	Know processing operations.	3.2
a.	Knowledge of the appearance of diseased dressed bird.	3.8
b.	Knowledge of the appearance of the healthy dressed bird.	3.6
c.	Knowledge of the different types.	3.6
d.	Knowledge of state, federal, and local health regulations concerning poultry.	3.6
e.	Know the grades of poultry.	3.4
f.	Knowledge of bird disection.	3.4
g.	Knowledge of the machinery used in the processing plant.	3.3
h.	Knowledge of the temperature and time needed for scalding the bird.	3.0
i.	Knowledge of cost factors affecting processing.	2.8
j.	Knowledge of the ways to kill the poultry.	2.8
k.	Knowledge of the different types of meat on the bird.	2.5
7.	Understand proper storage procedures.	3.6
a.	Knowledge of correct temperature range.	3.7
b.	Knowledge and identification of freezer burn.	3.6
c.	Knowledge of the appearance of the dressed bird.	3.6
8.	Have an understanding of marketing procedures and regulations.	2.8
a.	Interpretation of federal and state regulations to the retailer.	3.5
b.	Interpretation of federal and state regulations to the wholesaler.	3.4
c.	Knowledge of federal, state, and local health regulations concerning poultry.	3.4
d.	Knowledge of retail operations.	2.6
e.	Knowledge of wholesale operations.	2.4
f.	Knowledge of supply and demand.	2.3
g.	Knowledge of cost factors.	2.2

MILK TESTER

Job Description:

The individual performs tests in determining the quantity and/or quality of physical and/or chemical properties in milk and ensures compliance with company and government standards. The Tester is competent in using appropriate laboratory and office equipment. This person may travel from farm to farm to make designated tests.

Competencies Identified and Validated

N = 50*

Competencies	Weighted Mean**
1. Have knowledge of milk composition and computation.	3.0
a. Butterfat content.	3.7
b. Solids not fat (SNF).	3.5
c. Water percentage.	3.4
d. Mineral content.	2.4
e. Vitamin D content.	2.2
2. Have general knowledge of the dairy industry.	3.0
a. Production problems associated with handling milk.	3.3
b. Milk storage.	3.2
c. Grade of milk.	3.0
d. Milk transportation.	2.9
e. Marketing to wholesalers and retailers.	2.4
3. Know sanitation regulations.	3.0
a. Know Federal and State regulations.	3.4
b. Know disease carrying organisms found in milk.	3.1
c. Be familiar with local board of health regulations.	3.0
d. Know pasteurization methods.	2.8
e. Know preventive procedures to control disease and insects.	2.6
4. Possess various milk testing skills.	3.5
a. Operate centrifuges and other equipment.	3.6
b. Operate microscope.	3.5
c. Detect the aroma of milk.	3.5
d. Test for non-fat solids.	3.5

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* Responses from 50 Milk Testers in 33 states. Survey conducted by Department of Agricultural Education, North Carolina A & T State University, Greensboro, North Carolina 27411.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

e.	Test for cream.	3.5
f.	Test for butterfat.	3.5
g.	Test for acidity.	3.4
h.	Make bacterial counts.	3.3
i.	Test for alkalinity.	3.2
j.	Test for salt content.	2.8

ANIMAL HEALTH ASSISTANT

Other Titles: Veterinary-Hospital Attendant, Veterinary Assistant.

Job Description:

The Animal Health Assistant is responsible for the care of animals under treatment in animal hospital for disease, injury, or for production of serums; leads, wheels, or carries animal from quarters to treatment room; lifts animal onto treatment table and applies restraints or holds it during treatment; sterilizes surgical instruments and other special equipment, such as rubber gloves, syringes, and test tubes, using germicides and autoclave; administers anesthetic, medications, and prescribed nursing care, under direction of veterinarian; measures, mixes, grinds, and chops specified ingredients to prepare food, and feeds animals. Bathes and brushes animals, and clips their nails. Sweeps, dusts, mops, and hoses hospital rooms and animal quarters. May receive clients, answer telephone, make appointments, and accept payment on accounts.

Competencies Identified and Validated

N = 43*

Competencies		Weighted Mean**
1.	Perform general office work.	3.3
a.	Use telephone.	3.7
b.	Wear appropriate dress for office work.	3.5
c.	Greet clients and customers.	3.5
d.	File X-rays.	3.4
e.	Admit and dismiss patients.	3.3
f.	File office forms and records.	3.3
g.	Schedule appointments.	3.3
h.	Determine purpose of visits.	3.2
i.	Operate office equipment.	3.0
j.	Write notes, memos, and letters.	3.0
k.	Notify clients of appointments.	2.8
2.	Record information.	3.2
a.	Record vaccination information.	3.6
b.	Record medication information.	3.5
c.	Record patient information.	3.4

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* Responses from 43 Animal Health Assistants in 20 states. Survey conducted by Department of Agricultural Education, The Ohio State University, Columbus, Ohio 43210.

** 4.0 = Essential; 3.0 = Important; 2-0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	d.	Record client information.	3.4
	e.	Record feeding information.	3.4
	f.	Record bowel movement.	3.4
	g.	Record surgery information.	3.3
	h.	Record weight information.	3.2
	i.	Receive payment.	3.0
	j.	Maintain account records and payments.	2.6
	k.	Balance daily cash statement.	2.4
3.	Handle and care for animals.		3.3
	a.	Control animals when handling.	3.8
	b.	Identify animals.	3.7
	c.	Observe animals for problems.	3.6
	d.	Place animals in pens.	3.5
	e.	Collect bowel movements.	3.4
	f.	Exercise animals.	3.3
	g.	Take pulse and temperature.	3.3
	h.	Separate noncompatible animals.	3.3
	i.	Identify animal heat signs.	3.2
	j.	Assist in delivering young.	3.2
	k.	Evaluate condition of animals.	3.1
	l.	Estimate weight of animals.	2.7
	m.	Induce bowel movements.	2.5
4.	Feed animals.		3.2
	a.	Add medication to feeds.	3.6
	b.	Provide water for animals.	3.5
	c.	Place feed in containers.	3.3
	d.	Prepare feed.	3.3
	e.	Determine amount of feed required by animals.	3.0
	f.	Interpret information on feed labels.	2.9
5.	Groom animals.		3.1
	a.	Clip nails.	3.4
	b.	Clean ears.	3.2
	c.	Bathe animals.	3.0
	d.	Clean teeth.	3.0
	e.	Comb animals.	2.8
	f.	Dry washed animals with towel and dryer.	2.8
6.	Perform examining room work.		3.6
	a.	Use appropriate disinfectants.	3.8
	b.	Place and restrain animals on examining table.	3.8
	c.	Preparing examination room area.	3.7
	d.	Disinfect examining table and equipment.	3.7
	e.	Identify external parasites.	3.5
	f.	Assist in treating disease.	3.3
7.	Perform laboratory tests.		3.5
	a.	Set up and adjust microscope.	3.6
	b.	Perform flotation method.	3.6

	c.	Operate centrifuge.	3.6
	d.	Identify parasites and eggs.	3.5
	e.	Analyze fecal samples.	3.5
	f.	Collect urine samples.	3.3
	g.	Chemically examine urine.	3.2
	h.	Perform CBC's. #	
	i.	Examine urinary sediment. #	
	j.	Innoculate media for bacterial cultures. #	
	k.	Perform blood serum tests and blood smears. #	
8.		Dispense medicine and supplies.	3.4
	a.	Maintain orderly storage shelves.	3.6
	b.	Measure exact amounts for prescriptions.	3.6
	c.	Store products in appropriate area.	3.6
	d.	Label drug containers.	3.4
	e.	Destroy empty containers.	3.2
	f.	Interpret prescriptions.	3.2
	g.	Transfer products to proper containers.	3.2
	h.	Interpret product labels.	3.0
9.		Administer medication.	3.4
	a.	Sterilize injection equipment.	3.8
	b.	Fill syringe.	3.8
	c.	Administer oral medication under supervision.	3.7
	d.	Administer surface medication, under supervision.	3.5
	e.	Administer IM injections under supervision.	3.4
	f.	Administer subcutaneous injections under supervision.	3.3
	g.	Administer rectal medication under supervision.	3.0
	h.	Administer IV injections under supervision.	2.9
10.		Restrain animals.	3.7
	a.	Restrain animal's head.	3.9
	b.	Properly approach animal.	3.8
	c.	Open mouth.	3.8
	d.	Apply various muzzles.	3.8
	e.	Form temporary muzzles.	3.8
	f.	Identify animal moods.	3.7
	g.	Tie animal to table.	3.5
11.		Assist with X-rays.	3.4
	a.	Use appropriate aprons and gloves.	3.9
	b.	Use proper film.	3.6
	c.	Store X-rays.	3.5

Not included on questionnaire but recommended by some experts surveyed.

	d.	Develop film.	3.5
	e.	Maintain water and solution temperatures.	3.4
	f.	Position animal for X-rays.	3.4
	g.	Remove film from cassette.	3.4
	h.	Fix film.	3.4
	i.	Adjust cassette holder.	3.3
	j.	Identify normal X-ray procedures.	3.2
	k.	Measure part of the animal to be examined.	3.2
	l.	Mix and replace developing solution.	3.1
12.		Use and maintain small animal care equipment.	3.6
	a.	Sterilize instruments and equipment.	3.9
	b.	Clean and disinfect instruments and equipment.	3.8
	c.	Identify anesthesiology equipment.	3.8
	d.	Identify bandage and stitch scissors.	3.8
	e.	Identify transfusion equipment.	3.7
	f.	Identify various injection equipment.	3.7
	g.	Identify various syringes.	3.7
	h.	Identify various suture needles.	3.6
	i.	Identify various hemostats.	3.6
	j.	Identify various forceps.	3.6
	k.	Identify catheters.	3.6
	l.	Identify surgical blades and scalpels.	3.6
	m.	Identify fracture equipment.	3.6
	n.	Identify cauterizing equipment.	3.6
	o.	Store instruments and equipment.	3.6
	p.	Select appropriate equipment.	3.6
	q.	Identify and use dental equipment.	3.5
	r.	Identify scissor tips.	3.5
	s.	Check equipment for defects.	3.4
	t.	Identify canine tonsil snares.	3.3
	u.	Identify post-mortem equipment.	3.3
13.		Prepare facilities and equipment for surgery.	3.6
	a.	Clean surgical equipment.	3.8
	b.	Lay out surgical equipment.	3.7
	c.	Prepare standard and special surgical packs.	3.7
	d.	Prepare sterile bundles and germicide basins.	3.6
	e.	Prepare sterile gowns, caps and masks.	3.6
	f.	Perform scrubbing technique.	3.5
14.		Prepare animals for surgery.	3.6
	a.	Assist in anesthetizing animals.	3.7
	b.	Clip animal hair.	3.6
	c.	Shave animal.	3.6
	d.	Wash animal.	3.6
	e.	Wash operative area on animal.	3.6
	f.	Drape and position animal.	3.5

15.	Perform emergency first aid.	3.5
a.	Identify shock symptoms.	3.6
b.	Apply minor medication.	3.6
c.	Apply antiseptic.	3.6
d.	Stop external bleeding.	3.6
e.	Cleanse wounds.	3.6
f.	Administer oxygen.	3.5
g.	Identify hemorrhaging symptoms.	3.5
h.	Maintain body temperature.	3.5
i.	Administer artificial respiration.	3.3
j.	Prepare patient for transfusion.	3.3
k.	Identify various internal bleeding.	2.9
16.	Inventory products.	3.2
a.	Remove expired products.	3.3
b.	Take physical inventory.	3.3
c.	Remove contaminated items.	3.3
d.	Order supplies.	2.9
17.	Sell and market products.	3.2
a.	Make change.	3.4
b.	Meet customers.	3.4
c.	Determine amount of product on hand.	3.4
d.	Stock shelves.	3.3
e.	Price products.	2.7
18.	Maintain facilities.	3.4
a.	Clean and disinfect pens.	3.5
b.	Clean feeders.	3.4
c.	Clean holding pens, cages, and runs.	3.4
d.	Clean waiting and grooming rooms.	3.4
e.	Dispose of residue and trash.	3.3
19.	Follow safety precautions.	3.7
a.	Follow safe work habits.	3.8
b.	Identify potential safety hazards.	3.7
c.	Store chemicals safely.	3.7
d.	Wear appropriate protective clothing.	3.7
e.	Administer minor first aid for cuts, bruises, burns, etc.	3.6
f.	Use fire extinguishers.	3.5

LABORATORY ANIMAL ASSISTANT

Other Titles: General Laboratory Helper, Animal Tender, Animal Caretaker, Animal Keeper.

Job Description:

Cares for laboratory animals such as rabbits, mice, rats, guinea pigs, dogs, and monkeys used in experimental biological and medical research; inspects animals for general appearance and counts animals when received to verify against purchase orders; weighs or measures, grinds, chops, and mixes specified quantities of ingredients to prepare animal food; feeds and waters animals as indicated by schedules and diet lists; records amount consumed; leads or carries animals between quarters, laboratories, and surgery; holds animals during injections; examines animals to detect signs of illness; adjusts controls to insure that temperature and humidity of animal's quarters are within specified limits; separates weaned animals from their mothers; segregates animals according to their breed, color, size, weight, and diet of animals for breeding purposes; places animals in containers for shipment; may innoculate animals with serums or antibiotics; cleans and sterilizes cages, pens, and surrounding areas, such as walls, windows, and floors, using steam or germicidal solutions; places portable cages in autoclave and sterilizes them; repairs cages and equipment using hand tools; sprays insecticides and spreads powder in animal quarters to exterminate insects; orders feed and supplies; may remove dead animals to incinerator for cremation.

Competencies Identified and Validated

N = 31*

Competencies	Weighted Mean**
1. Interpret medical terminology.	2.9
a. Identify reproductive system and function.	3.2
b. Identify major disease terminology.	3.1
c. Identify general anatomy and physiology.	3.1
d. Identify respiratory system and function.	2.8
e. Identify urinary system and function.	2.7
f. Identify circulatory system and function.	2.7
g. Identify digestive system and function.	2.7
h. Identify integumentary system and function.	2.7

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* Responses from 31 Laboratory Animal Assistants in 20 states. Survey conducted by Department of Agricultural Education, The Ohio State University, Columbus, Ohio 43210.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

2.	Record information.	3.2
a.	Record weight information.	3.5
b.	Record height information.	3.5
c.	Record medication information.	3.3
d.	Record patient information.	3.3
e.	Record feeding information.	3.2
f.	Record surgery information.	3.2
g.	Record water information.	3.1
h.	Record vaccination information.	3.0
i.	Record bowel movement.	2.9
j.	Record heat cycle for breeding stock.	2.8
k.	Record phenotype of animals where more than one is possible. #	
3.	Handle and care for animals.	3.1
a.	Identify animals.	3.8
b.	Observe animals regularly for problems.	3.8
c.	Evaluate condition of animals.	3.7
d.	Sex animals.	3.6
e.	Tag animals.	3.6
f.	Separate noncompatible animals.	3.5
g.	Weigh animals.	3.4
h.	Assist in quarantine procedures.	3.4
i.	Regulate air movement and temperature in holding areas.	3.3
j.	Place animals in pens.	3.1
k.	Provide proper environment for bred animals.	3.0
l.	Check if animals are pregnant.	2.9
m.	Estimate weight of animals.	2.9
n.	Identify animal heat signs.	2.8
o.	Take pulse and temperature.	2.7
p.	Assist animals in nursing.	2.3
q.	Induce bowel movements.	1.6
4.	Feed animals.	[illegible]
a.	Provide water for animals.	3.6
b.	Place feed in containers.	3.4
c.	Prepare feed.	3.2
d.	Determine how often animals should be fed.	3.0
e.	Determine amount of feed required by animals.	3.0
f.	Add medication to feeds.	2.9
g.	Determine when to feed.	2.9
h.	Identify information on feed labels.	2.8
i.	Determine nutritional requirement of animals.	2.8
j.	Determine which feeds may be fed animals .	2.7
5.	Perform laboratory tests.	2.7
a.	Take blood samples.	3.3
b.	Collect urine samples.	2.8

Not included on questionnaire but recommended by some experts surveyed.

c.	Measure solids and liquids.	2.7
d.	Convert English measurement to metric measurement.	2.7
e.	Chemically examine urine.	2.1
f.	Identify internal and external parasites. #	
6.	Dispense medicine and supplies.	3.1
a.	Store products in appropriate area.	3.5
b.	Maintain orderly storage shelves.	3.4
c.	Destroy empty containers and drug administration devices.	3.3
d.	Transfer products to proper containers.	3.3
e.	Measure exact amounts for prescriptions.	3.2
f.	Interpret product labels.	2.9
g.	Label drug containers.	2.9
h.	Prepare animal drug forms.	2.6
i.	Interpret prescription requests.	2.5
7.	Administer medication.	3.0
a.	Administer oral medication under supervision.	3.2
b.	Administer subcutaneous injections under supervision.	3.2
c.	Fill syringe.	3.2
d.	Locate injection points on animals under supervision.	3.2
e.	Sterilize injection equipment.	3.1
f.	Administer surface medication under supervision.	3.1
g.	Administer IM injections under supervision.	3.1
h.	Select proper needles.	3.0
i.	Administer IV injections under supervision.	3.0
j.	Interpret veterinarian medication prescription.	2.9
k.	Administer rectal medication under supervision.	2.8
l.	Identify and select animals proper medication.	2.5
m.	Administer injections asceptically. #	
8.	Restrain animals.	3.0
a.	Properly approach animals.	3.5
b.	Restrain animal's head.	3.4
c.	Operate restraining mechanisms.	3.1
d.	Form temporary muzzles.	3.0
e.	Identify animal moods.	2.9
f.	Open mouth.	2.8
g.	Tie animal to table.	2.8
h.	Tape legs.	2.7

# Not included on questionnaire but recommended by some experts surveyed.

9.	Assist with X-rays.		2.0
	a.	Measure part of animal to be examined.	2.0
10.	Use and maintain small animal care equipment.		2.9
	a.	Clean and disinfect instruments and equipment.	3.7
	b.	Sterilize instruments and equipment.	3.4
	c.	Use and maintain various scales and balances.	3.3
	d.	Interpret equipment operation instructions.	3.2
	e.	Check equipment for defects.	3.2
	f.	Select appropriate equipment.	3.1
	g.	Store instruments and equipment.	3.1
	h.	Identify various syringes.	3.1
	i.	Maintain air cleaners.	2.9
	j.	Identify various injection equipment.	2.9
	k.	Identify transfusion equipment.	2.6
	l.	Identify catheters.	2.6
	m.	Identify various forceps.	2.6
	n.	Identify various hemostats.	2.5
	o.	Identify scissor tips.	2.5
	p.	Identify and use nail files.	2.2
	q.	Identify and use rake.	2.0
11.	Prepare facilities and equipment for surgery.		3.1
	a.	Clean surgical equipment.	3.3
	b.	Perform scrubbing technique.	3.2
	c.	Prepare sterile gowns, caps, and masks.	2.9
12.	Prepare animals for surgery.		3.1
	a.	Clip animal hair.	3.3
	b.	Shave animal.	3.2
	c.	Assist in anesthetizing animal.	3.1
	d.	Drape and position animal.	3.0
13.	Perform emergency first aid.		2.8
	a.	Identify internal hemorrhaging symptoms.	3.4
	b.	Apply minor medication.	3.2
	c.	Apply antiseptic.	3.1
	d.	Cleanse wounds.	3.1
	e.	Identify various external bleeding.	3.0
	f.	Isolate suspected rabid animals.	3.0
	g.	Stop external bleeding.	2.9
	h.	Identify shock symptoms.	2.8
	i.	Maintain body temperature.	2.8
	j.	Prepare and transport emergency victims.	2.6
	k.	Administer artificial respiration.	2.4
	l.	Administer oxygen.	2.4
	m.	Prepare patient for transfusion.	2.1
14.	Inventory products.		3.1
	a.	Remove contaminated items.	3.4
	b.	Remove expired products.	3.3
	c.	Take physical inventory.	3.1

	d.	Order supplies.	3.0
	e.	Use stocking forms.	2.8
15.		Follow legal regulations.	2.9
	a.	Determine what duties may be performed.	2.9
16.		Maintain facilities.	3.5
	a.	Clean feeders.	3.6
	b.	Clean holding pens, cages, and runs.	3.6
	c.	Clean and disinfect pens.	3.5
	d.	Dispose of residue and trash.	3.5
	e.	Clean waiting and grooming rooms.	3.3
	f.	Maintain automatic watering system.	3.3
17.		Follow safety precautions.	3.6
	a.	Follow safe work habits.	3.9
	b.	Identify potential safety hazards.	3.7
	c.	Wear appropriate protective clothing.	3.7
	d.	Store chemicals safely.	3.6
	e.	Use fire extinguisher.	3.4
	f.	Administer minor first aid for cuts, bruises, burns, etc.	3.3
18.		Perform post surgical care.	3.1
	a.	Record abnormal behavior.	3.3
	b.	Identify shock symptoms.	3.0
	c.	Maintain body heat.	2.9
19.		Perform euthanasia methods.	3.2
	a.	Identify method for specific species.	3.3
	b.	Perform euthanasia procedures.	3.1

PET SHOP WORKER

Other Titles: Pet Shop Attendant, Aquarist, Aquarium Tankman, Tank Attendant, Tankman.

Job Description:

Cares for birds and animals and fish in a pet shop; feeds and waters birds and animals by replenishing troughs; cleans pens and cages, using scraper and shovel; observes birds and animals for signs of sickness or injury; transfers birds and animals from one cage to another, or removes them according to customer selection, manually or by use of a net. The Pet Shop Worker attends to fish and other marine life; prepares food or special diets for and feeds fish; cleans bottom and clears away algae on windows of tanks, using scrubbing brushes; attends to marine plants and decorations used in live tank displays; observes and reports diseased, injured, or dead fish; gives medical treatments to and provides other necessities for fish as directed; may record number and kinds of fish for inventory purposes.

Competencies Identified and Validated

N = 25*

Competencies	Weighted Mean**
1. Perform general office work.	2.7
a. Greet clients and customers.	3.7
b. Use telephone.	3.7
c. Wear appropriate dress for office work.	3.1
d. Write notes, memos, and letters.	2.9
e. Manage bad checks.	2.6
f. Determine purpose of visits.	2.4
g. File office forms and records.	2.2
h. Schedule appointments.	2.1
i. Operate office equipment.	2.0
Record information.	2.9
a. Record feeding information.	3.5
b. Record medication information.	3.4
c. Maintain animal loss record.	3.1
d. Maintain animal transfer record.	3.0
e. Record vaccination information.	3.0

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* Responses from 25 Pet Shop Workers in 20 states. Survey conducted by Department of Agricultural Education, The Ohio State University, Columbus, Ohio 43210.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

f.	Record patient information.	3.0
g.	Balance daily cash statements.	3.0
h.	Record client information.	3.0
i.	Record personal accidents.	2.9
j.	Deposit daily receipts.	2.8
k.	Record weight information.	2.8
l.	Record account data.	2.8
m.	Record surgery information.	2.7
n.	Prepare monthly bank statement.	2.7
o.	Maintain account records and payments.	2.7
p.	Receive payment.	2.6
q.	Maintain personnel work hours chart.	2.6
r.	Write checks.	2.1
3.	Handle and care for animals.	3.2
a.	Implement and maintain sanitary procedures.	3.7
b.	Maintain sanitary environment for young.	3.6
c.	Separate noncompatible animals.	3.6
d.	Observe animals regularly for problems.	3.6
e.	Estimate weight of animals.	3.5
f.	Evaluate condition of animals.	3.5
g.	Control animals when handling.	3.4
h.	Place animals in pens.	3.3
i.	Provide proper environment for bred animals.	3.2
j.	Exercise animals.	3.1
k.	Identify husbandry practices of rodents.	3.1
l.	Isolate pregnant animals.	3.1
m.	Tag animals.	3.1
n.	Identify husbandry practices or parakeet varieties.	3.0
o.	Identify husbandry practices of lovebirds and cockateels.	3.0
p.	Identify husbandry practices of parrots and macaws.	2.9
q.	Check if animals are pregnant.	2.8
r.	Identify breeding methods.	2.7
s.	Play with animals.	2.6
t.	Identify animal heat signs.	2.6
4.	Feed animals.	3.0
a.	Provide water for animals.	3.8
b.	Place feed in containers.	3.3
c.	Prepare feed.	3.2
d.	Add medication to feeds.	3.2
e.	Feed pre/post shipment diet.	3.1
f.	Determine amount of feed required by animals.	3.0
g.	Determine nutritional requirement of animals.	2.9
h.	Determine how often animals should be fed.	2.9
i.	Determine when to feed.	2.9
j.	Determine common nutritional principles.	2.9
k.	Determine which feeds may be fed animals.	2.9
l.	Identify common storage procedures.	2.8
m.	Identify information on feed labels.	2.6

	n. Identify components of feed.	2.5
5.	Groom animals.	2.0
	a. Dry washed animals with towel and dryer.	2.4
	b. Comb animals.	2.2
	c. Identify water and shampoo differences.	2.2
	d. Clip nails.	2.0
	e. Pluck hair.	1.7
	f. Perfume animals.	1.5
6.	Perform examining room work.	2.0
	a. Use appropriate disinfectants.	2.6
	b. Assist in treating disease.	2.0
	c. Assist manager in determining control procedures.	2.0
	d. Place and restrain animal on examining table.	1.8
	e. Prepare examination room area.	1.8
	f. Use proper taping techniques.	1.8
7.	Perform laboratory tests.	2.3
	a. Measure solids and liquids.	2.3
	b. Identify parasites and eggs.	2.2
8.	Dispense medicine and supplies.	2.7
	a. Destroy empty containers and drug administration devices.	2.8
	b. Store products in appropriate area.	2.8
	c. Interpret product labels.	2.6
	d. Label drug containers.	2.6
	e. Transfer products to proper containers.	2.6
9.	Perform emergency first aid.	3.0
	a. Isolate abnormal animals.	3.1
	b. Maintain body temperature.	3.0
	c. Cleanse wounds.	2.9
	d. Apply antiseptic.	2.8
10.	Inventory products.	3.0
	a. Remove contaminated items.	3.1
	b. Order supplies.	3.0
	c. Take physical inventory.	3.0
	d. Remove expired products.	3.0
	e. Use stocking forms.	2.7
11.	Sell and market products.	3.3
	a. Complete sales slip.	3.6
	b. Initiate sales.	3.6
	c. Demonstrate items for sale.	3.5
	d. Handle customer inquiries and complaints.	3.5
	e. Make change.	3.4
	f. Operate cash register.	3.4

g.	Determine whether product requested is on hand.	3.4
h.	Price products.	3.2
i.	Prepare newspaper, newsletter, and other written public advertisements.	2.3
12.	Follow legal regulations.	3.0
a.	Demonstrate knowledge of animal health care regulations.	3.2
b.	Demonstrate knowledge of state laws.	3.0
c.	Understand the legal rights and privileges of personnel.	3.0
d.	Be aware of federal, state, and local lobby organizations.	3.0
e.	Determine what duties may be performed.	2.9
f.	Demonstrate knowledge of laws regulating pet supply companies.	2.9
g.	Be aware of agencies available for legal help.	2.9
h.	Determine which materials may be sold without prescriptions.	2.8
13.	Maintain facilities.	3.7
a.	Clean feeders.	3.7
b.	Clean waterers.	3.7
c.	Clean and disinfect pens.	3.7
d.	Dispose of residue and trash.	3.7
14.	Follow safety precautions.	3.6
a.	Identify potential safety hazards.	3.7
b.	Store chemicals safely.	3.7
c.	Follow safe work habits.	3.6
d.	Use fire extinguishers.	[illegible]
e.	Administer minor first aid for cuts, bruises, burns, etc.	3.5
15.	Order tropical fish.	[illegible]
a.	Identify disease and bacteria found in fresh water aquariums.	[illegible]
b.	Determine number of tanks to be prepared for new fish orders.	[illegible]
c.	Inventory and order fish.	2.6
d.	Determine retail amounts of tropical fish ordered.	2.6
16.	Merchandise fish.	3.0
a.	Identify fish.	3.2
b.	Display speciality fish properly.	3.1
c.	Place fish in proper tanks.	3.0
d.	Select and use appropriate gravel for types of fish to be displayed.	3.0
e.	Properly set up and display fish.	3.0

	f.	Use proper lighting for display fish.	2.9
	g.	Select proper background and ornaments for display fish.	2.9
	h.	Display top and bottom swimming fish appropriately.	2.8
17.	**Receive and handle tropical fish.**		3.3
	a.	Acclimate newly received fish.	3.3
	b.	Unpack delicate fish.	3.3

KENNEL WORKER

Other Titles: Dog Care Man, Dog Handler, Kennelman.

Job Description:

The Kennel Worker is responsible for attending to dogs in kennel; cleans kennels and rebeds dog pens, using brushes and disinfectant solutions; washes dogs and grooms and trims them for exhibition, using hand brushes, clippers, combs, and scissors; weighs and mixes specified amounts of feeds, and fills feed and water troughs; observes dogs to detect sickness and presence of disease; may regulate temperature and ventilation in kennel; may exercise dogs on treadmills; may maintain feed and breeding records; may assist in training dogs for hunting, guiding, and track.

Competencies Identified and Validated

N = 30*

Competencies		Weighted Mean**
1.	Perform general office work.	2.1
a.	Admit and dismiss patients.	3.0
b.	Determine purpose of visit.	2.9
c.	Write memos, notes, and letters.	2.0
d.	Greet clients and customers.	1.9
e.	Use telephone.	1.9
f.	File office forms and records.	1.7
g.	Schedule appointments.	1.6
h.	Wear appropriate dress for office work.	1.6
i.	Handle client inquiries. #	
2.	Record information.	3.1
a.	Record vaccination information.	3.4
b.	Record feeding information.	3.4
c.	Record client information.	3.4
d.	Record patient information.	3.4
e.	Record medication information.	3.3
f.	Record pedigree records.	3.3
g.	Record weight information.	3.2
h.	Maintain account records and payments.	3.0
i.	Deposit daily receipts.	2.8
j.	Balance daily cash statement.	2.7

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* Responses from 30 Kennel Workers in 20 states. Survey conducted by Department of Agricultural Education, The Ohio State University, Columbus, Ohio 43210.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

# Not included on questionnaire but recommended by some experts surveyed.

k.	Record bowel movement.	2.7
l.	Receive payment.	2.5
m.	Record breeding information. #	
n.	Record growth data. #	
3.	Handle and care for animals.	3.0
a.	Assist animals in nursing.	3.6
b.	Assist animals in delivering young.	3.5
c.	Collect bowel movements.	3.5
d.	Control animals when handling.	3.5
e.	Exercise animals.	3.0
f.	Induce bowel movements.	3.0
g.	Identify animal heat signs.	2.9
h.	Identify breeding methods.	2.9
i.	Observe animals regularly for problems.	2.9
j.	Separate noncompatible animals.	2.9
k.	Take pulse and temperature.	2.9
l.	Check if animals are pregnant.	2.9
m.	Estimate weight of animals.	2.8
n.	Place animals in pens.	2.8
o.	Identify animals.	2.5
p.	Provide proper environment for bred animals.	2.4
q.	Regulate air movement and temperature in holding areas.	2.4
4.	Feed animals.	3.5
a.	Provide water for animals.	3.7
b.	Prepare feed.	3.6
c.	Place feed in containers.	3.6
d.	Determine when to feed animals.	3.6
e.	Determine amount feed required by animals.	3.6
f.	Determine how often animals should be fed.	3.6
g.	Determine nutritional requirement of animals.	3.5
h.	Determine which feeds may be fed animals.	3.5
i.	Identify information on feed labels.	3.5
j.	Interpret nutritional feed charts.	3.4
k.	Add medication to feeds.	2.3
l.	Record and dispose of uneaten feed. #	
5.	Groom animals.	[illegible]
a.	Bathe animals.	[illegible]
b.	Clean ears.	[illegible]
c.	Clip nails.	0.9
d.	Comb animals.	0.9
e.	Dry washed animal with towel and dryer.	0.9
f.	Drain anal sacs.	0.7
g.	Determine proper type of shampoo, rinse, and dip to use. #	
h.	Handle and use clippers properly. #	

# Not included on questionnaire but recommended by some experts surveyed.

6.	Perform examining room work.	0.7
a.	Use appropriate disinfectants.	1.0
b.	Identify external parasites.	0.9
c.	Change bandages.	0.8
d.	Assist in treating disease.	0.8
e.	Apply bandages.	0.7
f.	Assist manager in determining control procedures.	0.7
g.	Assist in diagnosing infectious and non-infectious diseases.	0.3
7.	Perform laboratory tests.	0.5
a.	Measure solids and liquids.	0.5
b.	Determine internal parasites from fecal samples. #	
8.	Dispense medicine and supplies.	2.1
a.	Label drug containers.	3.6
b.	Transfer products to proper containers.	2.8
c.	Maintain orderly storage shelves.	2.7
d.	Store products in appropriate area.	2.6
e.	Interpret product labels.	1.5
f.	Destroy empty containers and drug administering devices.	0.9
g.	Interpret prescription request.	0.7
9.	Administer medication.	1.9
a.	Administer oral medication under supervision.	3.4
b.	Interpret vet medication prescriptions.	1.4
c.	Administer surface medication under supervision.	0.9
10.	Restrain animals.	1.7
a.	Restrain animal's head.	3.2
b.	Properly approach animal.	3.1
c.	Open mouth.	[illegible]
d.	Identify animal moods.	[illegible]
e.	Form temporary muzzles.	0.9
f.	Apply various muzzles.	0.9
11.	Assist with X-rays.	2.6
a.	Identify film development problems.	2.9
b.	Develop film.	2.9
c.	Clean processing tanks.	2.7
d.	Identify developing chemicals.	2.7

Not included on questionnaire but recommended by some experts surveyed.

e.	Adjust settings.	2.5
f.	Fix film.	2.1
12.	Use and maintain small animal care equipment.	2.8
a.	Store instruments and equipment.	2.9
b.	Check equipment for defects.	2.8
c.	Clean and disinfect instruments and equipment.	2.7
13.	Show animals.	3.1
a.	Register animals for show.	3.1
b.	Assist in showing animals.	3.1
c.	Train dogs for show. #	
14.	Perform emergency first aid.	3.5
a.	Apply antiseptic.	3.7
b.	Apply minor medication.	3.6
c.	Identify internal hemorraging symptoms.	3.5
d.	Identify and stop various external bleeding.	3.5
e.	Prepare and transport emergency victims.	3.5
f.	Maintain body temperature.	3.5
g.	Isolate abnormal animals.	3.4
h.	Cleanse wounds.	3.3
i.	Identify shock symptoms.	3.2
j.	Immobilize fractured limbs. #	
15.	Inventory products.	3.3
a.	Remove expired products.	3.6
b.	Use stocking forms.	3.4
c.	Remove contaminated items.	3.4
d.	Take physical inventory.	3.0
e.	Order supplies.	3.0
16.	Sell and market products.	3.3
a.	Handle customer inquiries and complaints.	3.5
b.	Complete sales slip.	3.4
c.	Determine whether product requested is on hand.	[illegible]
d.	Make change.	[illegible]
e.	Demonstrate items for sale.	[illegible]
f.	Arrange displays.	3.3
g.	Stock shelves.	3.3
h.	Price products.	3.2
i.	Meet customers.	2.9
17.	Follow legal regulations.	3.1
a.	Determine which materials may be sold without prescription.	3.2

# Not included on questionnaire but recommended by some experts surveyed.

	b.	Determine what duties may be performed.	2.9
18.		Maintain facilities.	3.5
	a.	Clean feeders.	3.6
	b.	Dispose of residue and trash.	3.5
	c.	Clean holding pens, cages, and runs.	3.4
	d.	Clean waiting and grooming rooms.	3.4
	e.	Clean and disinfect pens.	3.4
	f.	Repair fencing and latches. #	
19.		Follow safety precautions.	3.4
	a.	Use fire extinguishers.	3.7
	b.	Wear appropriate protective clothing.	3.5
	c.	Store chemicals safely.	3.5
	d.	Identify potential safety hazards.	3.4
	e.	Follow safe work habits.	3.2
	f.	Administer minor first aid for cuts, bruises, burns, etc.	3.2
	g.	Use chemicals safely. #	

Not included on questionnaire but recommended by some experts surveyed.

DOG GROOMER

Other titles: Dog Bather, Dog Beautician, Dog Hair-Clipper.

Job Description:

The Dog Groomer is responsible for performing the following duties to groom dogs: regulates bath water temperature by adjusting valves to control flow of hot and cold water, washes dogs with perfumed soap or shampoo solution, using handbrush, repeats washing until dog is clean and free of body odor; dries dog using towel and electric drier; trims and shapes dog's hair and toe nails, using scissors and clippers; cleans animal's quarters.

Competencies Identified and Validated

N = 31*

Competencies	Weighted Mean**
1. Perform general office work.	3.0
a. Greet clients and customers.	3.7
b. Schedule appointments.	3.6
c. Use telephone.	3.5
d. Notify clients of appointments.	3.2
e. Admit and dismiss patients.	3.0
f. Determine purpose of visit.	3.0
g. Wear appropriate dress for office work.	2.7
h. File office forms and records.	2.5
i. Operate office equipment.	2.3
j. Write memos, notes, and letters.	2.2
2. Record information.	3.0
a. Record client information.	3.3
b. Record medical information.	3.3
c. Record patient information.	2.6
3. Handle and care for animals.	3.6
a. Control animals when handling.	3.9
b. Separate noncompatible animals.	3.9
c. Evaluate condition of animals.	3.8
d. Regulate air movement and temperature in holding areas.	3.6
e. Place animal on grooming table.	3.6
f. Identify animals.	3.5

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* Responses from 31 Dog Groomers in 5 states. Survey conducted by Department of Agricultural Education, The Ohio State University, Columbus, Ohio 43210.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

g.	Place animals in pens.	3.4
h.	Identify heat signs of animals.	3.3
4.	Feed animals.	2.3
a.	Provide water for animals.	3.1
b.	Prepare feed.	1.9
c.	Place feed in containers.	1.9
5.	Groom animals.	3.4
a.	Clean ears.	3.9
b.	Clip nails.	3.9
c.	Comb animals.	3.9
d.	Identify clipping problems.	3.9
e.	Perform various scissoring patterns.	3.8
f.	Perform various clipping patterns.	3.8
g.	Bathe animals.	3.8
h.	Dry washed animal with towel and dryer.	3.7
i.	Identify water and shampoo differences.	3.5
j.	Perform post clipping procedures.	3.5
k.	Drain anal sacs.	3.3
l.	Pluck hair.	3.1
m.	Perform various stripping patterns.	2.9
n.	Perfume animals.	2.7
o.	Paint nails.	2.2
p.	Clean teeth.	1.9
q.	Determine heat of clipper and blade at all times.#	
6.	Restrain animals.	3.4
a.	Properly approach animal.	3.7
b.	Restrain animal's head.	3.5
c.	Identify animal moods.	3.5
d.	Form temporary muzzles.	3.4
e.	Apply various muzzles.	3.3
f.	Open mouth.	3.0
7.	Use and maintain small animal care equipment.	3.5
a.	Clean and disinfect instruments and equipment.	3.9
b.	Identify and use clipper head.	3.9
c.	Identify and use various scissors.	3.9
d.	Identify and use brushes.	3.9
e.	Identify and use nail clippers.	3.9
f.	Use and maintain clippers.	3.9
g.	Identify and use combs.	3.8
h.	Select appropriate equipment.	3.7
k.	Interpret equipment operation instructions.	3.6

Not included on questionnaire but recommended by some experts surveyed.

	l. Store instruments and equipment.	3.5
	m. Use mat splitter.	3.4
	n. Identify and use thinning shears.	3.4
	o. Use vacuum cleaner.	3.4
	p. Identify and use nail files.	3.2
	q. Identify and use rake.	3.1
	r. Identify and use carder.	2.6
	s. Identify and use dental equipment.	1.7
8.	Perform emergency first aid.	3.5
	a. Apply antiseptic.	3.6
	b. Apply minor medication.	3.6
	c. Cleanse wounds.	3.6
	d. Stop external bleeding.	3.5
	e. Maintain body temperature.	3.2
9.	Inventory products.	3.2
	a. Remove contaminated items.	3.4
	b. Take physical inventory.	3.1
	c. Order supplies.	3.1
10.	Sell and market products.	3.5
	a. Meet customers.	3.6
	b. Make change.	3.5
	c. Handle customer inquiries and complaints.	3.4
11.	Follow legal regulations.	3.9
	a. Determine what duties may be performed.	3.9
12.	Maintain facilities.	3.7
	a. Clean holding pens, cages, and runs.	3.9
	b. Clean waiting and grooming rooms.	3.8
	c. Dispose of residue and trash.	3.8
	d. Control ventilation.	3.8
	e. Clean sinks and bathing areas.	3.9
	f. Clean and disinfect pens.	3.7
	g. Lay out grooming equipment.	3.5
13.	Follow safety precautions.	3.7
	a. Follow safe work habits.	3.8
	b. Identify potential safety hazards.	3.8
	c. Administer minor first aid for cuts, bruises, burns, etc.	3.7
	d. Use fire extinguishers.	3.7
	e. Store chemicals safely.	3.7
	f. Wear appropriate protective clothing.	3.5
14.	Interpret grooming terminology.	3.6
	a. Identify long-haired breeds requiring little trimming.	3.8
	b. Identify the various kinds of clips.	3.8

c.	Identify the various terriers.	3.7
d.	Identify the various poodles.	3.7
e.	Identify the Cocker Spaniel.	3.7
f.	Identify the Pekingese.	3.6
g.	Identify Afghan Hound.	3.5
h.	Identify the Setters.	3.5
i.	Identify the Golden Retriever.	3.5

PRODUCTION SUPERVISOR

Other Titles: Foreman, Plant Superintendent, Plant Manager.

Job Description:

The production supervisor determines the uses to be made of milk received daily; keeps records of incoming milk and outgoing dairy products; is responsible for sanitary conditions and cleanliness of equipment; schedule repairs to buildings and equipment; purchases supplies and controls plant inventory; and is responsible to regulatory officials including public health, OSHA, and others.

Competencies Identified and Validated

N = 40*

	Competencies	Weighted Mean**
1.	Inspect equipment daily and make sure it is in good repair, is clean and sanitized.	3.5
2.	Determine daily use of milk into milk and milk products.	3.4
3.	Record incoming milk and outgoing milk products daily.	3.3
4.	Keep record of quality control.	3.3
5.	Schedule employee's work, vacations, and substitute workers.	3.3
6.	Responsible to regulatory officials (local, state, national) such as public health, OSHA, etc.	3.3
7.	Keep inventory of stock and supplies.	3.0
8.	Review job classification and performance of employees.	3.0
9.	Purchase supplies.	2.8
10.	Schedule maintenance and repair.	2.8
11.	Interview prospective employees.	2.7
12.	Plan for future expansion, renovation, and equipment replacement.	2.5

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* Responses from 40 Production Supervisors in 9 states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

MILK PROCESSOR

Other Titles: Pasteurizer, Tester, Separator, Homogenizer.

Job Description:

Under the supervision of the plant superintendent, the Milk Processor operates all milk processing equipment, is responsible for sanitizing and cleaning the equipment, and for performing minor repairs and adjustments. They supervise the work of the employees in the processing, packaging, and storing of milk products. They keep records of milk processed, supplies on hand, and report needs to the plant superintendent.

Competencies Identified and Validated

N = 39*

Competencies		Weighted Mean**
1.	Operate milk processing equipment including H.T.S.T., Homogenizer, separator, pasteurizing vats, storage vats, packaging equipment, and C.I.P. cleaning equipment.	3.8
2.	Sanitize and clean equipment as necessary.	3.5
3.	Standardize milk by obtaining fat test and adding skim milk in correct required amount to obtain specified fat content level.	3.5
4.	Check equipment for malfunction. Report service requirements to plant superintendent.	3.3
5.	Calculate the amounts of ingredients needed to make up various by-products such as chocolate milk, buttermilk, half and half, and various cheeses.	3.2
6.	Take proper milk and by-product samples as directed by the plant's laboratory personnel.	3.2
7.	Prepare daily production records.	3.1
8.	Instruct and direct work of other employees in the production, packaging, and storing of milk products.	3.0
9.	Perform minor repairs and adjustments to equipment as required.	2.7
10.	Distribute milk to other departments as required.	2.5
11.	May test for butterfat content of milk.	2.5
12.	Inventory equipment supplies on hand and report needs to plant superintendent.	2.3

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* Responses from 39 Milk Processors in eight states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

DAIRY PLANT HELPER .

Other Titles: Filler Operator, Evaporator Operator, Loader and Checker, Product Load Dispenser, By-Products Processor, Cold Storage Operator, Clean-up Personnel, Equipment and Fluid Flow Sanitarians, General Helper, Assistant Maintenance Helper, Electrician, Dairy Plant Worker.

Job Description:

Under the supervision of the dairy processing plant's product supervisors, helps process milk, make ice cream, cheese, butter, or other products where help is needed. Do work as assigned.

Competencies Identified and Validated

N = 41*

Competencies	Weighted Mean**
1. Follow instructions of supervisors.	3.9
2. Practice safety in all activities.	3.7
3. Report to supervisor malfunction of equipment and any unusual conditions which may arise in the work.	3.5
4. Have ability to work harmoniously with fellow workers.	3.4
5. Assist in operating and cleaning equipment.	3.4
6. Maintain records as assigned.	3.1
7. Report to supervisors supplies and equipment needed.	3.0

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* Responses from 41 Dairy Plant Helpers in 9 states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

SALESROOM SALES PERSON

Other Titles: Salesroom Attendant, Salesroom Clerk.

Job Description:

Under the supervision of the plant superintendent, this person supervises the sale of dairy products to customers and the general overall management of the salesroom. They must keep accurate records of receipts from sales and of products sold. They must maintain an adequate supply of products to be sold in the sales room. They supervise the cleaning of the salesroom and of its equipment.

Competencies Identified and Validated

N = 20*

Competencies	Weighted Mean**
1. Account for money in cash registers and obtain additional change from plant office as required.	3.5
2. Responsible for good public image.	3.5
3. Supervise the sale of products retailed through the plant's salesroom.	3.4
4. Order merchandise sold in salesroom including dairy products, miscellaneous items, etc.	3.2
5. Take monthly inventories and submit reports to the plant office.	3.1
6. Check equipment in the salesroom and report malfunctions and service requirements to the maintenance engineer or plant superintendent.	3.0
7. Supervise and schedule employees necessary for the operation of the salesroom; contact and assign part-time employees as required.	3.0
8. Inventory supplies such as napkins, cups, dishes, spoons and cleaning supplies and report to Plant Superintendent when new supplies are needed.	2.8
9. Supervise the cleaning of the salesroom and its equipment.	2.8
10. Cut, weigh and price various cheeses and supervise their packaging, storage or display.	2.7
11. Assist with the serving of retail customers during employee breaks, lunch hours or as needed.	2.5

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* Responses from 20 Salesroom Sales Persons in five states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important: 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

DAIRY PRODUCTS SALESMAN AND MILK TRUCK DRIVER

Other Titles: Driver, Salesman, Milk Truck Driver, Route Salesman, Route Driver.

Job Description:

The person in this occupation usually fills orders for processed dairy products from wholesale customers. Some retail dairy products to homes in addition to stores following a regular route weekly, bi-weekly, or more often. They load their truck with dairy products previously ordered and make deliveries. The care and maintenance of the truck may or may not be their responsibility. They keep a record of receipts from sales and deliveries.

Competencies Identified and Validated

N = 34*

Competencies	Weighted Mean**
1. Operate delivery truck to deliver market milk and other dairy products to retail or wholesale customers.	3.8
2. Obtain signature for receipt of goods and return signed copies to office.	3.7
3. Fill store and other wholesale orders for milk, cream, butter, cottage cheese, and other wholesale products; accumulate order and load onto truck daily.	3.6
4. Pick up empty cases, cans, etc. and return to dairy plant.	3.4
5. Report need of major repairs or service to plant supervisor.	3.2
6. Report unusual conditions to supervisor.	3.1
7. Perform other duties related or similar to the type described above.	2.6
8. Service truck with gas and oil; check radiator, battery, and oil levels; insure that truck is lubricated periodically; clean and wash truck as necessary.	2.5
9. Pick up supplies from local stores as directed.	1.8
10. Assist as directed in various rooms in dairy plant.	1.1

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* Responses from 34 Dairy Products Salesman and Milk Truck Drivers in six states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

BUTTER MAKER

Other Titles: Churn Operator, Butter Operator

Job Description:

Under the supervision of the plant superintendent, make butter from cream collected in the plant. Cut butter into prints and patties and store. Wash and sanitize butter making equipment.

Competencies Identified and Validated

N = 12*

	Competencies	Weighted Mean**
1.	Collect and dump cream into vat. Test for acidity and standardize when required.	3.2
2.	Pasteurize cream and cool. Draw off into churn. Add color if required.	3.3
3.	Operate churn. Draw off buttermilk.	3.5
4.	Wash and work butter. Remove from churn.	2.9
5.	Place butter in cooler. Cut prints and patties.	2.6
6.	Wash and sanitize butter making equipment.	3.3
7.	Knowledge of mechanical processing and cutting equipment. #	

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* Responses from 12 Butter Makers in four states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

# Not included on questionnaire but recommended by some experts surveyed.

ICE CREAM MAKER

Other Titles: Mix Man, Ice Cream Supervisor, Production Supervisor, Frozen Dessert Supervisor.

Job Description:

The Ice Cream Maker is responsible to the Dairy Plant Superintendent but has overall responsibility for the production of ice cream and sherberts. Determines amount of product to produce; stores product; cleans and sanitizes equipment; keeps inventory of product and supplies. Is often responsible for the supervision of several employees who work under their direction.

Competencies Identified and Validated

N = 26*

Competencies		Weighted Mean**
1.	Have overall responsibility for the ice cream room and the production of ice cream.	3.5
2.	Accurately calculate mixes.	3.4
3.	Supervise the mixing, freezing, packaging, and storing of ice cream and sherbert.	3.4
4.	Clean and sanitize equipment.	3.4
5.	Determine amounts of product to prepare to meet customer's requirements.	3.1
6.	Maintain product inventories.	3.0
7.	Insure that proper safety procedures are followed in all production areas.	3.0
8.	Check equipment for malfunctioning, and identify adjustments and repairs needed.	2.8
9.	Receive shipments of supplies; directs unloading, and verification of items, and proper storage.	2.6

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* Responses from 26 Ice Cream Makers in four states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 39740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

CHEESE MAKER

Other Titles: Cultured Products Operator

Job Description:

The Cheese Maker operates all equipment necessary for the production of the kinds of cheese made in the plant; they age, package, and store cheese; clean cheese-making equipment; maintain work area in a clean sanitary condition; instruct and direct the work of helpers as needed. They take and deliver to the plant laboratory samples of cheese for analysis.

Competencies Identified and Validated

N = 23*

	Competencies	Weighted Mean**
1.	Operate various equipment necessary for the production of cheese such as homogenizer, pasteurizing vats, milling machine, dryers, presses and aging rooms. Sanitize and clean equipment as necessary.	3.4
2.	Determine ingredients necessary for production of various cheeses such as cottage cheese, cheddar cheese, romano cheese, brick cheese, trappist cheese, cream cheese, cheese spreads, sour cream, etc.	3.4
3.	Prepare cheeses, checking cutting points, cooking items and temperatures following standardized procedures.	3.6
4.	Check cheeses for proper aging and determine when each is to be moved from aging room.	2.9
5.	Pack and store finished products; check cheese orders which are packed for delivery.	2.6
6.	Check equipment located in cheese area and report malfunctions and service requirements to the maintenance engineer or the plant superintendent. Perform minor repairs and adjustments, as required.	2.9
7.	Maintain work area in a clean and sanitary condition.	3.6
8.	Instruct and direct the work of other employees in the production, packaging, and storing of cheeses.	2.9
9.	Take necessary samples required by the plant laboratory for analysis and deliver to the laboratory.	2.9
10.	Maintain proper cheese room supplies and report needs to plant superintendent.	2.7

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* Responses from 23 Cheese Makers in seven states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

MAINTENANCE ENGINEER

Other Titles: Engineer, Mechanic, Maintenance and Refrigeration Engineer, Electrician, Physical Plant Supervisor, Physical Plant Engineer, Plant Engineer

Job Description:

The Maintenance Engineer performs a variety of duties related to the installation, maintenance and repair of equipment in the dairy processing plant. They lay out work and make electrical, mechanical, and plumbing repairs and connections to equipment as needed. They inspect all utilities equipment for proper operation such as gas, water, electricity, and sewer drainage. They safely use and properly store hand and power tools used in their work. They inform the plant superintendent of needed supplies and equipment. They may direct the work of helpers.

Competencies Identified and Validated

N = 41*

Competencies	Weighted Mean**
1. Install, maintain and repair all milk processing equipment in the plant, including refrigeration systems and equipment.	3.8
2. Insure proper operation of dairy plant equipment daily.	3.7
3. Inspect refrigeration and cooling systems and equipment for proper operation. Perform necessary repairs and maintenance.	3.6
4. Maintain steam and hot water systems.	3.5
5. Direct work of helpers.	3.4
6. Make repairs on all utilities needed in the plant including water, gas, electricity, and sewers or drainage facilities.,	3.4
7. Use hand and power tools safely such as lathe, drill press, welder; etc., in the performance of duties.	3.4
8. Inform plant superintendent of needed supplies and equipment.	3.2
9. Store, sharpen, and maintain hand and power tools used in work in excellent condition.	3.2
10. Repair motors within capabilities of the shop.	3.0

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* Responses from 41 Maintenance Engineers in 9 states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

11.	Replace water filters when needed.	2.9
12.	Check water softness and recondition as necessary.	2.8
13.	Check blueprints for construction, repair, or remodeling of the plant. Report errors, misprints and make suggestions for changes.	2.7

LABORATORY TECHNICIAN

Other Titles: Quality Control Supervisor, Microbiologist.

Job Description:

The Laboratory Technician determines the percentage of butter fat in milk of suppliers and determines price for payment; determines fat and solids for products to be sold; performs bacteriological analysis on raw and processed dairy products to insure compliance with state and federal standards; cares for various bacterial cultures, used in dairy products; maintains accurate detailed records on analysis of products and operational condition of equipment; submits analysis reports as required.

Competencies Identified and Validated

N = 37*

	Competencies	Weighted Mean**
1.	Determine fat and solids on products to be sold to insure compliance with state and federal requlations and stndards.	3.8
2.	Perform bacteriological analyses on raw and processed dairy products to insure compliance with state and federal standards.	3.6
3.	Maintain laboratory and laboratory procedures to comply with both state and federal approved laboratory licensing program.	3.6
4.	Determine the percentage of butter fat in milk of suppliers to establish a price for payment.	3.5
5.	Maintain accurate detailed records on analysis of products and operational conditions of equipment.	3.5
6.	Perform other laboratory procedures as required.	3.4
7.	Submit daily analysis reports to the plant superintendent and monthly reports as required.	3.4
8.	Transfer and care for various bacterial cultures.	3.0
9.	Maintain inventory of laboratory supplies and materials and reorders as necessary.	3.0
10.	Perform analysis to determine the strength of cleaning and sanitizing solutions and the hardness of water.	2.8
11.	Perform freezing point determination analysis on the milk cryoscope.	2.7
12.	Operate the Mojonnier tester to accurately determine fat and solids on various products.	2.5

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* Responses from 37 Laboratory Technicians in nine states. Survey conducted by Department of Agricultural Education, California State University, Fresno, California 93740.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

SLAUGHTER HOUSE WORKER

Job Description:

Slaughter House Workers work in a slaughtering plant, whether large or small, and are involved in the slaughter and dressing of beef, sheep, or swine. They may be employed in a small slaughter house where they are doing most or all of the steps in slaughtering or in a large plant where they are only doing one or a few. Workers are involved with the slaughter animals from the time they are humanely slaughtered, bled, skinned, and cooled.

Competencies Identified and Validated

N = 37*

Competencies	Weighted Mean**
1. Slaughter beef animals.	3.2
a. Stick or bleed cattle.	3.7
b. Remove fore feet.	3.7
c. Open hide down midline.	3.7
d. Remove hide from brisket.	3.7
e. Remove hide from the sides of the rounds.	3.7
f. Skin hide around rump.	3.7
g. Trim carcass - hide, skin, bruises, warbles, dirt, manure.	3.7
h. Stun or immobilize cattle.	3.3
i. Skin head.	3.3
j. Remove hide from short plate.	3.3
k. Remove hide from flank.	3.3
l. Skin hides from side.	3.3
m. Open hide to the bung.	3.3
n. Loosen and drop the bung.	3.3
o. Skin hide around sirloin.	3.3
p. Drop hide from sirloin.	3.3
q. Drop hide over the back.	3.3
r. Drop hide down to the neck.	3.3
s. Open abdominal cavity.	3.3
t. Remove paunch, intestines, liver, spleen, and stomachs.	3.3
u. Cut diaphragm.	3.3
v. Remove pluck.	3.3
w. Split carcass into two halves.	3.3
x. Remove bone dust in sternum and vertebrae.	3.3
y. Weigh the carcass.	3.3

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* Responses from 37 Slaughterhouses and Retail Meat Cutters in 16 states. Survey conducted by the Agricultural Education Department, California Polytechnic State University, San Luis Obispo, California 93407.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

z.	Tag the carcass.	3.3
aa.	Place carcass in holding cooler.	3.3
bb.	Shackle cattle.	3.0
cc.	Remove head.	3.0
dd.	Skin fore feet.	3.0
ee.	Skin hind feet.	3.0
ff.	Remove hind feet.	3.0
gg.	Pin the neck with skewer.	3.0
hh.	Scribe feather bones.	3.0
ii.	Break feather bones.	3.0
jj.	Wash carcass with warm water.	3.0
kk.	Place carcass in cooler (hot box).	3.0
ll.	Remove shroud.	3.0
mm.	Rib carcass.	3.0
nn.	Shroud the carcass.	2.7
oo.	Pin the shroud.	2.7
pp.	Remove the oxtail.	2.3
2.	Slaughter lambs.	3.1
a.	Stun or immobilize lamb.	3.7
b.	Remove paunch, intestines, liver, spleen, and stomachs.	3.7
c.	Stick or bleed lamb.	3.3
d.	Skin the hind legs.	3.3
e.	Skin the fore legs.	3.3
f.	Skin the neck.	3.3
g.	Skin the breast.	3.3
h.	Tie off the esophagus.	3.3
i.	Fist the pelt from the abdomen and flanks.	3.3
j.	Fist the pelt from rump, legs, cod or udder.	3.3
k.	Cut around anus to clear dock.	3.3
l.	Pull pelt over loin, rack, shoulder and neck.	3.3
m.	Trim around neck.	3.3
n.	Remove pelt.	3.3
o.	Remove head.	3.3
p.	Open abdominal cavity.	3.3
q.	Wash carcass.	3.3
r.	Weigh carcass.	3.3
s.	Shackle lamb.	3.0
t.	Open the pelt from navel to anus.	3.0
u.	Cut diaphragm.	3.0
v.	Remove pluck.	3.0
w.	Trim carcass - skin, wool, bruises, hair, manure.	3.0
x.	Tag the carcass.	3.0
y.	Place carcass in cooler.	3.0
z.	Place carcass in holding cooler.	3.0
aa.	Tie hind shanks together.	2.3
bb.	Tie foreshanks.	2.3
3.	Slaughter swine.	3.1
a.	Stun or immobilize hog.	3.7

b.	Shackle hog.	3.3
c.	Stick or bleed hog.	3.3
d.	Put hog in scalding vat.	3.3
e.	Remove hog from scalding vat.	3.3
f.	Open abdominal cavity.	3.3
g.	Remove viscera.	3.3
h.	Split the hams.	3.3
i.	Split the hog in two with cleaver or saw.	3.3
j.	Wash the carcass.	3.3
k.	Put hog in dehairer or remove hair with bell scraper.	3.0
l.	Use hands and fingers to remove hair from face, jowls and legs.	3.0
m.	Use knife to remove remaining skin, hair, and scurf.	3.0
n.	Remove toenails.	3.0
o.	Remove dew claws.	3.0
p.	Expose gambrel tendens.	3.0
q.	Insert gambrel.	3.0
r.	Suspend on rail.	3.0
s.	Singe hog.	3.0
t.	Shave remaining hair.	3.0
4.	Observe safety precautions.	3.4
a.	Apply first aid to minor cuts, bruises, and burns.	4.0
b.	Follow safe work habits.	3.7
c.	Identify potential safety hazards.	3.3
d.	Wear appropriate protective clothing.	3.3
e.	Use proper lifting and carrying methods.	3.3
f.	Wear appropriate work clothing.	3.3
g.	Adjust safety shields and devices.	3.3
h.	Remove debris from work areas.	3.3
i.	Correct potential safety hazards.	3.0
5.	Use and maintain hand and power equipment.	3.2
a.	Adjust tools and equipment.	3.7
b.	Clean tools.	3.7
c.	Select appropriate tools and equipment for specific jobs.	3.3
d.	Sharpen tools.	3.3
e.	Use hand tools safely.	3.3
f.	Use power tools and equipment safely.	3.3
g.	Use electric and hand saws.	3.3
h.	Identify tools.	3.0
i.	Interpret tool and equipment operation instructions.	3.0
j.	Store tools.	3.0
k.	Use fly fans.	3.0
l.	Use knives and cleavers.	3.0
m.	Use meat hooks.	3.0
n.	Use meat tracks and hooks.	3.0

	o.	Use metal and wooden skewers.	3.0
6.		Sanitize meat slaughter facilities.	3.5
	a.	Evaluate influence sanitary conditions may have on meat spoilage.	4.0
	b.	Clean and sanitize floors, ceilings, and walls in the slaughter room and cooler.	3.7
	c.	Clean and sanitize meat slaughter tools.	3.7
	d.	Clean and sanitize power cutting equipment.	3.7
	e.	Select appropriate cleaning and sanitizing agents and equipment.	2.3
	f.	Identify personal sanitation practices to follow.	3.0
	g.	Identify sanitation requirements for licensing.	3.0

PROCESSED MEATS WORKER

Job Description:

The Processed Meats Worker is involved with the process of preservation of meats. He may be involved in any one of the following types of processing: dry curing, curing with liquid, injection curing, cover pickle curing, combination cures, smoke curing, and sausage preparation.

Competencies Identified and Validated

N = 37*

Competencies		Weighted Mean**
1.	Bacon.	2.4
a.	Trim bacon.	3.3
b.	Clean knives and tools.	3.2
c.	Clean up machines.	3.2
d.	Clean working area.	3.0
e.	Set schedule on smoke house.	2.7
f.	Put bacon in smoke house.	2.6
g.	Arrange bacon prior to packaging machine.	2.6
h.	Remove combs from bacon.	2.5
i.	Take internal temperature.	2.5
j.	Pump bacon with cure or feed.	2.5
k.	Weigh bacon.	2.5
l.	Separate bacon (grades bacon).	2.3
m.	Feed bacon slicer.	2.3
n.	Unload smoke house.	2.3
o.	Pump machine, insert combs into bacon.	2.3
p.	Put bacon in cooler.	2.3
q.	Hang bacon on racks.	2.0
r.	Box packaged bacon.	1.7
s.	Remove from blast chiller.	1.7
t.	Transfer bacon to blast chiller.	1.7
u.	Operate bacon presser (squares them).	1.3
2.	Hams.	2.3
a.	Trim hams.	3.3
b.	Clean up machines.	3.2
c.	Clean up knives and tools.	3.2
d.	Take internal temperature.	3.0
e.	Pump hams with cure or feed pumping machine.	2.8
f.	Clean up working area.	2.4

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g.	Check ham for proper injection.	2.7
h.	Weigh hams.	2.5
i.	Set schedule on smoke house.	2.5
j.	Bone hams (remove all bones).	2.5
k.	Hang hams on racks.	2.3
l.	Put hams in smoke house.	2.3
m.	Unload smoke house.	2.3
n.	Tie ham in stockinette.	2.0
o.	Shape ham.	1.8
p.	Remove stockinette.	1.8
q.	Box hams.	1.7
r.	Tie bag.	1.7
s.	Remove casing.	1.7
t.	Trim internal fat.	1.7
u.	Stuff ham into casing.	1.5
v.	Stuff into cryovac.	1.3
3.	Sausage.	2.9
a.	Grind beef.	3.5
b.	Grind pork.	3.5
c.	Add salt, dextrose and seasoning.	2.8
d.	Clean grinder.	2.8
e.	Clean chopper.	2.8
f.	Add remaining moisture.	2.7
g.	Add pork trim.	2.6
h.	Package sausage.	2.5
i.	Place in cutter or chopper.	2.5
j.	Keep track of products temperature throughout the chopping period.	2.5
k.	Transfer the product to the stuffer.	2.5
l.	Set schedule on smoke house.	2.5
m.	Hang sausage.	2.3
n.	Place in smoke house.	2.3
o.	Remove from smoke house.	2.3
p.	Put into cooler.	2.3
q.	Shut down smoke house and apply steam.	2.0
r.	Shut off steam and apply cold water shower.	2.0
s.	Add 1/2 moisture (ice or cold water).	1.8
t.	Box sausage.	1.5
u.	Peel sausage.	1.3

BREAKING HOUSE WORKER

Job Description:

The Breaking House Worker works in a plant where beef carcasses are cut into the primal cuts; chucks, ribs, loins and rounds. Veal carcasses are cut into the standard primal cuts; leg, loin, hotel rack, shoulder. Lamb carcasses are cut into the standard primal cut; leg, loin, hotel rack, and shoulder. And pork carcasses are cut into the standard primal cuts; fresh hams, loins, Boston butts, and pork shoulders. The worker may be involved with many steps in breaking carcasses or they may be in a larger plant where they are involved with only a few steps. These primal cuts are shipped to the retail stores to be cut up into retail cuts.

Competencies Identified and Validated

N = 37*

		Competencies	Weighted Mean**
1.		Observe safety precautions.	3.1
	a.	Wear appropriate work clothing.	3.4
	b.	Follow safe work habits.	3.4
	c.	Use proper lifting and carrying methods.	3.3
	d.	Wear appropriate protective clothing.	3.3
	e.	Correct potential safety hazards.	3.1
	f.	Interpret information on labels and signs.	3.1
	g.	Identify potential safety hazards.	3.1
	h.	Adjust safety shields and devices.	3.0
	i.	Apply first aid to minor cuts, bruises, and burns.	3.0
	j.	Remove debris from work areas.	2.7
	k.	Install safety devices.	2.4
2.		Use and maintain hand and power meat cutting tools and equipment.	3.1
	a.	Use power tools and equipment safely.	3.6
	b.	Use hand tools safely.	3.4
	c.	Use electric and hand saws.	3.4
	d.	Use knives and cleavers.	3.4
	e.	Interpret tool and equipment operation instructions.	3.4
	f.	Adjust tools and equipment.	3.3
	g.	Identify tools.	3.3
	h.	Select appropriate tools and equipment for specific jobs.	3.3

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i.	Sharpen tools.	3.3
j.	Clean tools.	3.1
k.	Recondition tools.	3.1
l.	Set-up tools and equipment.	3.0
m.	Use meat hooks.	3.0
n.	Use cutting tables and blocks.	2.9
o.	Use meat tracks and hooks.	2.9
p.	Store tools.	2.7
q.	Use scales.	2.7
r.	Use block brush and scraper.	1.9
3.	Breaking beef,	3.8
a.	Cut ribs.	3.9
b.	Cut short loin.	3.9
c.	Cut sirloin.	3.9
d.	Pull tenderloin.	3.9
e.	Cut chuck.	3.7
f.	Cut brisket.	3.7
g.	Cut plate.	3.7
h.	Cut flank.	3.7
i.	Cut round.	3.7
j.	Identify primal cuts.	3.7
k.	Trim cuts of beef.	3.7
l.	Cut fore and hind shanks.	3.6
4.	Breaking veal.	3.2
a.	Cut hotel rack.	3.3
b.	Cut loin.	3.3
c.	Cut legs.	3.3
d.	Cut shoulder.	3.1
e.	Cut breast.	3.1
f.	Identify the primal cuts of veal.	3.1
g.	Trim veal meat cuts.	3.1
h.	Cut fore and hind shanks.	3.0
5.	Breaking lamb.	3.1
a.	Cut loin.	3.3
b.	Cut leg.	3.3
c.	Identify the primal cuts of lamb.	3.1
d.	Trim lamb cuts.	3.1
e.	Cut hotel rack.	3.0
f.	Cut breast.	3.0
g.	Cut square cut shoulder.	2.9
6.	Breaking pork.	2.5
a.	Cut pork loin.	2.7
b.	Cut fresh hams.	2.7
c.	Identify the primal cuts of pork.	2.7
d.	Cut pork shoulder (picnic shoulder).	2.6
e.	Cut bacon (side pork).	2.4
f.	Cut Boston butt (shoulder).	2.3

g.	Cut fat back.	2.1
h.	Cut jowl.	2.1
7.	Refrigerate and store meats.	3.5
a.	Rotate meats on a first-in first-out basis.	4.0
b.	Recognize signs of meat spoilage.	3.9
c.	Control temperature in storage areas.	3.3
d.	Determine temperature for meat storage areas.	3.3
e.	Handle carcasses in the cooler.	3.1
8.	Sanitize meat cutting facilities.	2.6
a.	Identify personal sanitation practices to follow.	3.3
b.	Clean and sanitize meat cutting tools.	3.1
c.	Clean and sanitize power meat cutting equipment.	2.6
d.	Evaluate influence sanitary conditions may have on meat spoilage.	2.6
e.	Clean and sanitize floors, ceilings, and walls in the cutting room and cooler.	2.4
f.	Clean and sanitize racks and counters in the cutting room and cooler.	2.4
g.	Select appropriate cleaning and sanitizing agents and equipment.	2.4
h.	Identify sanitation requirements for licensing.	2.3

RETAIL MEAT CUTTER

Other Titles: Head Meat Cutter, Meat Buyer-Cutter, Meat Department Manager.

Job Description:

The Retail Meat Cutter may work in retail meat outlets such as butcher shops and meat departments in retail stores. The meat cutter works with records kept in the meat department, cutting meat, and displaying cuts of meat for sale. The specific duties performed by the meat cutter will vary with the size and type of business where employed. In general, the meat cutter helps maintain inventories of meat on hand; maintains sanitary working areas; cuts beef, pork, veal, lamb, and poultry into retail cuts; prepares ground and ready to serve meats; packages and displays meats; and assists in the purchasing and managing of the retail meat department.

Competencies Identified and Validated

N = 37*

Competencies		Weighted Mean**
1.	Perform general office procedures.	2.1
	a. File various items of information.	2.2
	b. Meet people.	2.0
	c. Use telephone.	2.0
	d. Write memos, letters, and notes.	2.0
2.	Record information.	3.0
	a. Record inventory information on sheets.	3.4
	b. Record customer order information.	3.2
	c. Record amount of meat and poultry processed during day.	2.4
3.	Inventory meats and supplies.	2.7
	a. Remove damaged meat and poultry from inventory.	2.8
	b. Take a physical inventory.	2.6
	c. Determine amount of meat and poultry inventory on hand from records.	2.6
4.	Follow legal regulations.	2.9
	a. Display appropriate inspection certificates.	3.0
	b. Interpret local, state, and federal inspection requirements.	3.0

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	c.	Interpret meat marketing regulations.	2.6
5.		Observe safety precautions.	2.8
	a.	Follow safe work habits.	3.2
	b.	Remove debris from work areas.	3.2
	c.	Wear appropriate protective clothing.	3.0
	d.	Interpret information on labels and signs.	3.0
	e.	Correct potential safety hazards.	3.0
	f.	Use electrical connectors and safety devices.	3.0
	g.	Identify potential safety hazards.	2.8
	h.	Store chemicals.	2.8
	i.	Adjust safety shields and devices.	2.8
	j.	Apply first aid to minor cuts, bruises and burns.	2.6
	k.	Ventilate work area.	2.6
	l.	Wear appropriate work clothing.	2.6
	m.	Use proper lifting and carrying methods.	2.4
	n.	Install safety devices.	2.4
6.		Sell and display meats.	3.0
	a.	Describe various meat items to customers.	3.6
	b.	Label meats in display cases.	3.6
	c.	Rotate meats in display cases.	3.6
	d.	Price various meats for customers.	3.4
	e.	Greet customers.	3.2
	f.	Receive customer orders by telephone.	3.2
	g.	Stock self-service meat displays.	3.2
	h.	Arrange meat displays.	3.2
	i.	Weigh meats in display cases.	3.2
	j.	Set up a self-service meat display.	3.0
	k.	Make change for customers.	3.0
	l.	Handle customer complaints.	3.0
	m.	Determine percent markup and profits.	3.0
	n.	Regulate lighting in display cases.	2.8
	o.	Interpret customer's orders for various cuts.	2.6
	p.	Prepare advertisements.	2.4
	q.	Post sales announcements in display cases.	2.4
	r.	Operate cash register.	2.2
	s.	Identify seasonal items.	2.2
7.		Receive meat shipments.	2.9
	a.	Check material received against order.	3.6
	b.	Notate descrepancies on invoices.	3.6
	c.	Sign shipping receipt.	3.4
	d.	Inspect merchandise for damage.	3.2
	e.	Use spec-stick or receiving control device.	2.0
	f.	Help unload shipments.	1.6
8.		Use and maintain hand and power meat cutting tools and equipment.	2.8
	a.	Use scales.	3.8
	b.	Use hand tools safely.	3.6

c.	Use cutting tables and blocks.	3.6
d.	Use knives and cleavers.	3.6
e.	Interpret tool and equipment operation instructions.	3.4
f.	Select appropriate tools and equipment for specific jobs.	3.4
g.	Sharpen tools.	3.4
h.	Use power tools and equipment safely.	3.4
i.	Use grinder.	3.4
j.	Clean tools.	3.2
k.	Store tools.	3.2
l.	Use meat tracks and hooks.	3.2
m.	Adjust tools and equipment.	3.0
n.	Identify tools.	3.0
o.	Use electric and hand saws.	3.0
p.	Use meat hooks.	3.0
q.	Set-up tools and equipment.	2.8
r.	Use cuber.	2.8
s.	Use fly fans.	2.8
t.	Use rib trees.	2.6
u.	Use slicers.	2.6
v.	Recondition tools.	2.2
w.	Use tenderizer.	2.2
x.	Use patty maker.	2.0
y.	Use automatic wrapping and tying machines.	1.8
z.	Use metal and wooden skewers.	1.8
aa.	Use rolling storage and aging shelves.	1.8
bb.	Use block brush and scraper.	1.6
cc.	Use automatic labeling machines.	1.4
dd.	Use larding needle.	1.4
9.	Package meats.	2.6
a.	Select appropriate wrapping materials.	3.4
b.	Weigh meats for packaging.	2.8
c.	Wrap meats for customers' home freezers.	2.8
d.	Label packages for use in self-service display cases.	2.6
e.	Wrap and re-wrap packages for self-service display cases.	2.6
f.	Estimate weight of bulk meats.	2.2
g.	Inspect self-service display cases to determine which packages need to be rewrapped.	2.0
10.	Purchase meat, poultry, and supplies.	3.1
a.	Determine the amount to order.	3.2
b.	Determine what to order.	3.2
c.	Determine when to order.	3.2
d.	Evaluate the quality of meat and poultry from various suppliers.	3.2
e.	Compare and verify costs of meat and poultry from various suppliers.	3.0

	f.	Determine the quantity of meat and poultry to keep on hand.	3.0
	g.	Identify various sources of meat and poultry suppliers.	3.0
	h.	Identify various sources of meat processing supplies.	2.8
11.	Cut beef.		3.2
	a.	Identify primal beef cuts.	4.0
	b.	Bone beef.	3.8
	c.	Break beef forequarter and hindquarter.	3.8
	d.	Identify retail beef cuts.	3.8
	e.	Identify wholesale beef cuts.	3.8
	f.	Pull tenderloin (fillet).	3.4
	g.	Trim cuts of beef.	3.4
	h.	Cut chuck.	3.2
	i.	Cut foreshank.	3.2
	j.	Cut rib.	3.2
	k.	Cut round.	3.2
	l.	Cut short loin.	3.2
	m.	Cut short plate.	3.2
	n.	Strip the loin.	3.2
	o.	Cut brisket.	3.0
	p.	Cut flank.	3.0
	q.	Cut tips.	3.0
	r.	Handle beef in cutting room.	3.0
	s.	Shape roasts with string.	3.0
	t.	Cube beef by machine.	2.8
	u.	Cut and prepare beef heart.	2.8
	v.	Cut and prepare beef liver.	2.8
	w.	Cut and prepare beef tongue.	2.8
	x.	Prepare beef brains.	2.8
12.	Cut pork.		3.2
	a.	Identify retail pork cuts.	3.8
	b.	Identify the primal cuts of pork.	3.8
	c.	Identify wholesale pork cuts.	3.8
	d.	Bone pork.	3.6
	e.	Cut spareribs.	3.6
	f.	Handle pork in the cutting room.	3.6
	g.	Cut bacon (side pork).	3.4
	h.	Cut loin.	3.2
	i.	Cut picnic shoulder.	3.2
	j.	Cut smoked or fresh leg.	3.2
	k.	Shape roasts with string.	3.0
	l.	Cut Boston shoulder.	2.8
	m.	Cut fat back.	2.8
	n.	Slice ham.	2.8
	o.	Cut clean plate.	2.6
	p.	Cut jowl.	2.6

13.	Cut lamb.	3.2
a.	Identify retail cuts of lamb.	3.8
b.	Identify the primal cuts of lamb.	3.8
c.	Identify wholesale cuts of lamb.	3.8
d.	Cut loin.	3.6
e.	Break the hindsaddle and foresaddle.	3.4
f.	Handle lamb in the cutting room.	3.4
g.	Trim lamb cuts.	3.4
h.	Bone lamb.	3.2
i.	Cut leg.	3.2
j.	Cut neck.	3.2
k.	Cut sirloin.	3.2
l.	Cut breast.	3.0
m.	Cut hindshank and foreshank.	3.0
n.	Cut rib.	2.8
o.	Cut shoulder.	2.8
p.	Cut ground or cubed lamb.	2.6
q.	Score loin.	2.6
14.	Cut veal.	3.4
a.	Bone veal.	3.8
b.	Break down veal forequarter or foresaddle and hindquarter.	3.8
c.	Identify the primal cuts of veal.	3.8
d.	Identify wholesale cuts of veal.	3.8
e.	Cut loin.	3.6
f.	Cut rib.	3.6
g.	Cut round.	3.6
h.	Identify retail cuts of veal.	3.6
i.	Trim veal meat cuts.	3.6
j.	Cut shoulder.	3.4
k.	Cut sirloin.	3.4
l.	Handle veal in the cutting room.	3.2
m.	Cut breast.	3.0
n.	Cut hind and fore shanks.	3.0
o.	Grind veal.	3.0
p.	Cut veal by machine.	2.8
15.	Prepare ground and ready-to-serve meats.	3.5
a.	Grind meats.	3.8
b.	Identify pork meats to be used for ground ham loaf.	3.6
c.	Select beef meats to be used for ground beef.	3.4
d.	Select pork meats to be used for sausages.	3.4
e.	Select veal meats to be used for ground veal.	3.4
f.	Select lamb meats to be used for ground lamb.	3.2
16.	Inspect and grade meat.	2.9
a.	Evaluate influence grade has on preparation procedures for customers.	3.2
b.	Evaluate the influence grade has on retail price.	3.2

c.	Display inspection certificates.	3.0
d.	Evaluate the various characteristics which determine grade.	3.0
e.	Evaluate why meats are graded.	3.0
f.	Evaluate why wholesale and retail meat firms are inspected.	2.8
g.	Identify various meat inspection agencies.	2.4
h.	Interpret grading stamps on wholesale cuts.	2.4
17.	Refrigerate and store meats.	2.9
a.	Recognize signs of meat spoilage.	3.8
b.	Control temperature in storage areas.	3.6
c.	Determine temperature for meat storage areas.	3.6
d.	Rotate meats on a first-in first-out basis.	3.6
e.	Determine freezer storage life of various meats.	3.4
f.	Read thermometers in storage areas.	3.2
g.	Handle carcasses in the cooler.	3.0
h.	Handle retail meat in the cooler.	3.0
i.	Quick freeze meats for customers.	3.0
j.	Evaluate influence temperature, humidity, and air circulation have on longevity of meat.	2.8
18.	Cure meats.	3.0
a.	Apply spices to meats.	3.6
b.	Identify appropriate meat cuts that may be cured.	3.4
c.	Dry meats.	2.4
d.	Smoke meats.	2.4
19.	Sanitize meat cutting facilities.	3.4
a.	Clean and sanitize display cases.	3.8
b.	Clean and sanitize meat cutting tools.	3.8
c.	Clean and sanitize power meat cutting equipment.	3.8
d.	Clean and sanitize floors, ceilings, and walls in the cutting room and cooler.	3.4
e.	Clean and sanitize racks and counters in the cutting room and cooler.	3.4
f.	Evaluate influence sanitary conditions may have on meat spoilage.	3.4
g.	Identify personal sanitation practices to follow.	3.2
h.	Select appropriate cleaning and sanitizing agents and equipment.	3.0
i.	Identify sanitation requirements for licensing.	2.8

MEAT INSPECTOR

Job Description: Meat Inspectors assist in antemortem and postmortem inspections and look for abnormal and unusual conditions. They report to veterinary meat inspectors who are graduates of veterinary colleges which are accredited by the Civil Service Commission. They are designed to protect the consumer, give official assurance of wholesomeness and proper labeling, and detect and locate communicable diseases. Their basic functions are detection and destruction of diseased meat; assurance of clean and sanitary handling and preparation; prevention of adulteration (the addition of harmful substances or products considered improper in certain specified quantities); prevention of false labeling; application of the inspection stamp.

Competencies Identified and Validated

N = 37*

Competencies		Weighted Mean**
1.	Facilities and processing sanitation standards.	3.2
a.	Inspect rodent and insect control.	3.8
b.	Inspect general housekeeping - production area.	3.7
c.	Inspect equipment - product zone.	3.7
d.	Inspect walls.	3.5
e.	Inspect freezers and coolers.	3.5
f.	Inspect employee - dress.	3.5
g.	Inspect employee - hygiene.	3.5
h.	Inspect employee - work habits.	3.5
i.	Inspect handwashing and sanitizing.	3.5
j.	Inspect hot water supply.	3.5
k.	Inspect water pressure for clean-up purposes.	3.5
l.	Inspect windows, screens, etc.	3.3
m.	Inspect ceilings and overhead structures.	3.3
n.	Inspect doors.	3.3
o.	Inspect rails and shackles.	3.3
p.	Inspect sewer drainage system.	3.3
q.	Inspect outside premises.	3.3
r.	Inspect dry storage areas.	3.2
s.	Inspect production practices.	3.2
t.	Inspect floors.	3.2
u.	Inspect equipment - non-product zone.	2.8

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v.	Inspect ice facilities.	2.8
w.	Inspect general housekeeping - nonproduction area.	2.8
x.	Inspect water supply.	2.8
y.	Inspect lights.	2.5
z.	Inspect welfare facilities.	2.5
aa.	Inspect lighting.	2.5
bb.	Inspect ventilation.	2.3
cc.	Inspect antemortem areas.	2.3
2.	Antemortem inspection.	3.3
a.	Condemn animals with symptoms of a communicable disease.	4.0
b.	Condemn animals unfit for food.	3.8
c.	Tag unfit animals with a "condemned" tag.	3.8
d.	Assure elimination of unfit animals for food purposes.	3.8
e.	Inspect animals after arrival to plant.	3.6
f.	Condemn dead or dying animals.	3.2
g.	Eliminate animals with eminent parturition.	3.2
h.	Oversee final disposition of a "suspected" animal after postmortem examination is made.	3.2
i.	Tag doubtful animals as "suspect".	3.0
j.	See that "suspect" animals are separated and slaughtered separately.	3.0
k.	Condemn animals with abnormal temperature.	2.8
l.	Condemn comatose ani[illegible].	2.4
3.	Postmortem inspection of cattle.	2.9
a.	Incise repeatedly and examine the mandibular, suprapharnngeal, and parotid lymph nodes.	3.2
b.	Incise and examine the external and internal masseter muscles.	3.2
c.	Inspect head before corresponding carcass has been eviscerated.	3.2
d.	Incise repeatedly and examine the anterior and posterior mediastinal and bronchial lymph nodes.	3.2
e.	Palpate and examine tongue.	3.0
f.	Palpate the lungs.	2.8
g.	Examine the external and internal surfaces of the heart.	2.8
h.	Incise repeatedly and examine the hapatic lymph nodes.	2.8
i.	Open and examine bile duct.	2.8
j.	Palpate the liver.	2.8
k.	Examine paunch.	2.8
l.	Examine intestines.	2.8
m.	Examine mesenteric lymph glands.	2.8
n.	Examine spleen.	2.8
o.	Examine exposed surfaces of the carcass.	2.8
p.	Examine linings of thoracic, abdominal, and pelvic cavities.	2.8

q.	Palpate the kidneys.	2.2
4.	Postmortem inspection of sheep.	2.2
a.	Examine and palpate the external surface of the heart.	2.2
b.	Palpate the mediastinal and bronchial lymph nodes.	2.2
c.	Palpate the lungs.	2.2
d.	Examine and palpate the liver.	2.2
e.	Open the bile duct transversely.	2.2
f.	Examine the spleen.	2.2
g.	Examine the paunch.	2.2
h.	Examine the intestines.	2.2
i.	Examine the exposed surfaces of the carcass.	2.2
j.	Examine the linings of the thoracic, abdominal and pelvic cavity.	2.2
k.	Palpate the kidneys.	2.2
5.	Postmortem inspection of hogs.	2.8
a.	Incise repeatedly and examine the two mandibular lymph nodes.	2.8
b.	Palpate the bronchial lymph nodes.	2.8
c.	Palpate the lungs.	2.8
d.	Examine and palpate the external surface to the heart.	2.8
e.	Examine the liver.	2.8
f.	Palpate the hepatic lymph nodes.	2.8
g.	Examine the spleen.	2.8
h.	Examine the stomach.	2.8
i.	Examine the intestines.	2.8
j.	Palpate the mesenteric lymph nodes.	2.8
k.	Examine the exposed surfaces of the split carcass.	2.8
l.	Examine the exposed surfaces of the joints.	2.8
m.	Examine the exposed surfaces of the lining of the thoracic, abdominal and pelvic cavities.	2.8
n.	Palpate the kidneys.	2.8
6.	Product inspection.	3.0
a.	Fill out daily sanitation report.	3.3
b.	Check for the use of harmful substances in the formulation of a product.	3.2
c.	Check for proper labeling.	3.0
d.	Check for proper net weights on products.	3.0
e.	Take samples of all spices, condiments, coloring agents, cereals, and other additives.	2.8
f.	Send samples to Federal lab for compliances.	2.8
g.	Check for deviations in formulas used in processing products.	2.8
h.	Check for proper processing techniques.	2.8

POULTRY AND EGG PROCESSING

Note: Because of circumstances beyond the control of the Director of this National Study, very late in the study an institution was obtained to survey the occupations in Poultry and Egg Processing. So late was the request unavoidably made, the institution in the short time available could only identify the many occupations in Poultry and Egg Processing before the deadline for printing this publication. However, because of the importance of this industry over the nation, the many occupations or job titles identified follow. *

POULTRY PROCESSING

Poultry processing plants or businesses over the country vary in size of operation from very small to large plants which process thousands of birds each day. In small poultry processing plants a worker will probably perform all operations or steps in the processing of poultry. In large plants, workers specialize and perform only one or two operations in the process.

In a large poultry processing plant, the following different occupations or job titles will usually be found. The occupation or job title fairly well describes the skills involved in each occupation.

1. Receiving, hanging, killing area workers.
2. Picking room, New York dress room workers.
    - Foreman, scalder.
    - Pinning line attendant.
    - Chiller operator.
3. Offal room attendant.
4. Eviscerating area workers.
    - Rehanger.
    - Bar cutter, vent cutter, stabber.
    - Body opener.
    - Eviscerator, drawer (hand).
    - Position-drawer, (automatic eviscerator).
    - Inspector - USDA.
    - Assistant to the inspector, trimmer.
    - Salvager.
    - Heart and liver harvester.
    - Gizzard cutter - harvester.
    - Gizzard machine operator.
    - Gizzard inspector (in house).
    - Neck popper, cutter, dislocator.
    - Cropper.
    - Lunger, lung remover.
5. Cut up and packing area workers.

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* Occupations identified by Poultry Science Division of the Agriculture Department, Modesto Junior College, Modesto, California 95352.

A. Ice pack - whole body workers.

Rehanger - grader.
Giblet transfer attendant.
Giblet wrap machine attendant.
Tagger (wing).
Packer, Ice packer.
Master scaler, weight recorder.
Glue machine attendant, lidder.

B. Trade pack, packaging, further processing workers.

Splitter-breast.
Back cutter.
Cut-up and package line workers.
Wing cutter.
Breast cutter.
First leg cutter.
Last leg cutter.
Tray placer.
Pad placer.
Drum packer.
Thigh packer.
Breast packer.
Wing or drummet packer.
Labler.
Wrapping machine feeder.
Basket packer.
Rewrap person, salvager.
Wrap machine attendant.

C. Bag fryer line workers.

Giblet placer.
Bagger.
Taper.
Supply man.

D. Bulk parts workers.

Saw operator.
Deboner.
Box machine attendant, box maker.
Box supply man.
Packer, packager, master carton packer.
Weigh and price machine attendant.
Scaler, master scaler.
Manual labler.
Sleeve wrap attendant, lid machine attendant.

6. Weigh and price area workers.

Blast tunnel receiver.
Product mover.
Product feeder.
Weigh and price lead man.

7. Loading dock workers.

    Stocker, cooler production.
    Truck loader.

8. Miscellaneous job occupations.

    Knife sharpener.
    Sanitation man.
    Tank man.
    Quality control technician.
    Foreman.
    Product supervisor.
    Training supervisor.

9. Plant maintenance workers.

EGG PROCESSING

Eggs are processed as a whole product or are processed as egg products. The occupations in this agricultural processing industry follow.

A. Shell egg processing plant employees.
    - Shipping and receiving workers.
    - Processing room workers.
        - Supervisor.
        - Transfer worker.
        - Machine loader.
        - Candlers and pick-off workers.
        - Packing machine operator.
        - Lineman or finish packers.
        - Cooler worker.
    - Shift supervisor, foreman.
    - Inspector.
    - Clean up worker, sanitation.

B. Egg products processing plant employees.
    - Receiving and transfer room workers.
        - Supervisor.
        - Floor worker.
        - Loader operator.
        - Scanner.
    - Breaking room workers.
        - Supervisor.
        - Floor worker.
        - Breaking machine operator.
    - Processing room workers.
        - Supervisor.
        - Churn operator.
        - Pasteurizer processor or operator.
    - Can-off room, packing workers.
    - Miscellaneous occupations.
        - Forklift driver.
        - Clean-up worker.

WOOL BUYER

Job Description:

Purchases wool for processors on contract basis or for resale. Examines fleece and inspects samples of wools for fineness, color, length of fiber, amount of reject wool (seedy burry, dead and black) natural grease, and foreign matter present to ascertain market value. Offers price to seller on lot or graded basis. Contacts grower to bid on larger lots or on pools of several growers, sorts and grades purchased fleece according to texture and length of fiber. Shakes out fleece to remove dust and picks out burrs, sticks, strings, and mud. May be required to be licensed. May buy independently to resale at profit.

Competencies Identified and Validated

N = 31

Competencies	Weighted Mean**
1. Have a good knowledge of judging and showing sheep.	0.9
a. Know how to groom and block sheep.	0.9
b. Know the tools and materials used in grooming and blocking sheep.	0.9
2. Have a good knowledge of the history of sheep.	2.9
a. Know the fine-wool breeds.	3.3
b. Know the medium-wool breeds.	3.2
c. Know the long-wool breeds.	3.2
d. Know the different breeds of sheep.	2.9
e. Know the difference between native and Western production.	2.8
f. Distinguish the wool breeds of sheep from the meat breeds of sheep.	2.7
g. Be able to distinguish breed of sheep by wool sample.	2.7
h. Know the fur sheep breeds.	2.4
3. Have mathematical abilities.	3.1
a. Can multiply and divide proficiently.	3.9
b. Can add and subtract proficiently.	3.8
c. Can use algebra proficiently.	1.7

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* Responses from 31 Wool Buyers in 11 states. Survey conducted by Department of Vocational Agriculture Education, University of Wyoming, Laramie, Wyoming 82071.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

4.	Have a knowledge of the distribution of sheep and/or wool production.	3.0
a.	United States.	3.1
b.	Leading states in production of sheep/wool.	3.1
c.	World.	2.9
5.	Possess desirable personal qualities and qualifications.	3.6
a.	Demonstrate a willingness to work.	3.8
b.	Be honest and sincere.	3.8
c.	Demonstrate the ability to work on their own.	3.7
d.	Demonstrate a willingness to learn or take supervision.	3.7
e.	Demonstrate the ability to get along with others.	3.6
f.	Demonstrate the ability to project a desirable image for the firm.	3.6
g.	Demonstrate a positive job attitude about the organization when working with fellow employees, potential customers and producers.	3.6
h.	Demonstrate the ability to follow directions of supervisor.	3.6
i.	Budget time wisely.	3.5
j.	Maintain a satisfactory attendance record.	3.5
k.	Demonstrate acceptable personal appearance and personal hygiene.	3.5
l.	Accept routine tasks without becoming disinterested.	3.4
6.	Practice good human relations.	3.5
a.	Keep customer's financial records confidential.	3.6
b.	See and report the customer's point of view.	3.4
c.	Be a good listener.	3.4
7.	Can accurately calculate the amount of:	3.8
a.	Reject wool.	3.9
b.	Shrink.	3.9
c.	Dockage.	3.7
8.	Can accurately determine:	3.7
a.	Staple length.	3.9
b.	Wool fineness.	3.9
c.	Grade of wool.	3.9
d.	What price wool is worth in grease.	3.9
e.	Staple diameter.	3.8
f.	Wool color.	3.8
g.	Cost of transportation.	3.8
h.	Fiber strength.	3.8
i.	Cost per wool grade.	3.7

j.	What price wool is worth by mental process.	3.6
k.	Cost of dockage.	3.6
l.	Kemp.	3.6
m.	Cost of shrink.	3.5
n.	Cost of present black wool.	3.5
o.	Crimp.	3.2
9.	Know storage and handling procedure.	3.2
a.	Know how to sort wool.	3.4
b.	In a warehouse.	3.2
c.	Individual grower.	3.2
d.	Know how to open wool bags for inspection.	3.2
e.	Handle fleece without untieing it.	3.2
f.	In cooperatives.	3.1
10.	Know how to contact for purchase of wool.	3.4
a.	Individual wool growers.	3.8
b.	Warehouses dealing in wool storage.	3.8
c.	Cooperative wool grower associations.	3.7
d.	Hide and junk dealers.	2.4
11.	Knowledgeable and skillful in arranging for transportation.	3.1
a.	By train.	3.7
b.	By truck.	3.6
c.	By air.	1.7
12.	Be able to remember about how much of each grade in:	3.4
a.	A lot.	3.7
b.	A warehouse.	3.2
c.	Car load.	3.1
13.	Have knowledge of wool on hand by their employer.	3.1
a.	Know where wool is being stored.	3.2
b.	Know the sources of wool on hand.	3.2
c.	Know how long present supply will last.	2.9
14.	Can estimate reasonably close future market for wool.	3.4
a.	Know kind or type of wool in greatest demand.	3.5
b.	Is sensitive to market trends.	3.4
c.	Is aware of seasonal price changes.	3.4
15.	Have good knowledge of wool buying competition.	3.2
a.	Other wool buyers.	3.7
b.	Other companies.	3.7
c.	Other countries.	2.8
d.	Hide and junk dealers.	2.4

WOOL GRADER

Job Description:

Inspects wool to sort and grade it according to length of fiber, color, and degree of fineness, utilizing sight, touch, experience, and established specifications. Shakes fleece over screen-topped table to remove dust. Picks out foreign matter, such as burrs, sticks, strings, and cinders. Breaks fleece into pieces and inspects and sorts them according to quality.

Competencies Identified and Validated

N = 16

Competencies	Weighted Mean**
1. Have a good knowledge of judging and showing sheep.	1.4
a. Know how to groom and block sheep.	1.4
b. Know the tools and materials used in grooming and blocking sheep.	1.4
2. Have a good knowledge of the history of sheep.	2.7
a. Know the fine-wool breeds.	3.0
b. Know the medium-wool breeds.	3.0
c. Know the long-wool breeds.	2.9
d. Know the difference between Native and Western production.	2.9
e. Distinguish the wool breeds of sheep from the meat breeds of sheep.	2.7
f. Know the long-wool breeds.	2.9
g. Know the fur sheep breeds.	2.5
h. Be able to distinguish breed of sheep by wool sample.	2.4
3. Have mathematical abilities.	2.2
a. Can add and subtract proficiently.	2.8
b. Can multiply and divide proficiently.	2.8
c. Can use algebra proficiently.	1.0
4. Have a knowledge of the distribution of sheep and/or wool production.	2.2
a. United States.	2.3

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* Responses from 16 Wool Graders in 10 states. Survey conducted by Department of Vocational Agriculture Education, University of Wyoming, Laramie, Wyoming 82071.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	b.	World.	2.1
	c.	Leading states in production of sheep/wool.	2.1
5.		Possess desirable personal qualities and qualifications.	3.3
	a.	Demonstrate a willingness to work.	3.6
	b.	Demonstrate a willingness to learn or take supervision.	3.6
	c.	Demonstrate the ability to follow directions of supervisor.	3.6
	d.	Be honest and sincere.	3.5
	e.	Maintain a satisfactory attendance record.	3.4
	f.	Demonstrate a positive job attitude about the organization when working with fellow employees, potential customers and producers.	3.4
	g.	Demonstrate the ability to work on their own.	3.2
	h.	Accept routine tasks without becoming disinterested.	3.1
	i.	Demonstrate acceptable personal appearance and personal hygiene.	3.0
	j.	Demonstrate the ability to get along with others.	3.0
	k.	Budget time wisely.	2.9
	l.	Demonstrate the ability to project a desirable image for the firm.	2.8
6.		Can accurately calculate the amount of:	3.1
	a.	Reject wool.	3.3
	b.	Dockage.	3.0
	c.	Shrink.	3.0
7.		Can accurately determine:	2.9
	a.	Staple length.	3.8
	b.	Wool fineness.	3.8
	c.	Grade of wool.	3.8
	d.	Staple diameter.	3.6
	e.	Wool color.	3.5
	f.	Fiber strength.	3.5
	g.	Kemp.	3.4
	h.	Crimp.	3.1
	i.	Cost per wool grade.	2.5
	j.	What price wool is worth by mental process.	2.4
	k.	Cost of dockage.	2.3
	l.	Cost of shrink.	2.2
	m.	Cost of present black wool.	2.1
	n.	What price wool is worth in grease.	2.1
	o.	Cost of transportation.	1.8
8.		Know storage and handling procedure.	3.0
	a.	Know how to open wool bags for inspection.	3.6

b.	Know how to sort wool.	3.5
c.	Handle fleece without untieing it.	3.1
d.	In a warehouse.	2.8
e.	In cooperatives.	2.6
f.	Individual grower.	2.5
9.	Be able to remember about how much of each grade in:	2.2
a.	A lot.	2.6
b.	A warehouse.	2.1
c.	A car load.	2.0
10.	Have knowledge of wool on hand by their employer.	2.2
a.	Know where wool is being stored.	2.4
b.	Know the sources of wool on hand.	2.4
c.	Know how long present supply will last.	1.9
11.	Can estimate reasonably close future market for wool.	1.7
a.	Aware of seasonal price changes.	1.8
b.	Know kind or type of wool in greatest demand.	1.7
c.	Is sensitive to market trends.	1.6

GAME FARMER

Other Titles: Game Bird Raiser, Game Farm Manager, Wildlife Specialist, Game Propagator, Commercial Game Breeder, Superintendent Game Farmer, Breeder, Shooting Reserve Operator.

Job Description:

Operates a game farm for the selection, propagation, care and feeding, distribution and/or sale of game animals. The typical work includes selecting and marking of foundation stock, operation of incubators, hatchers, brooders, and the operation and maintenance of variety of farm tools and equipment. Feeds and waters birds and cleans their pen and yards. Examines birds to detect signs of illness and innoculates ill birds with antibiotics. Operates and provides preventative maintenance of field tillage, planting, and harvesting equipment. Clips birds wings to keep them in captivity. Trims bills of birds to prevent pecking. Exhibits prize birds at shows. Maintains game range, game farm buildings, and their installed equipment. Mixes feed according to formulas and fills feeding stations. Sets and maintains traps for predatory and noxious animals and birds that may prey upon and carry diseases to charges. Keeps farm records and makes reports. Supervises temporary employees assigned. Patrols the game farm or game refuge area to enforce game laws. Liberates birds and animals in designated areas.

Competencies Identified and Validated

N = 30*

Competencies	Weighted Mean**
1. Identify breeds of game birds.	2.8
a. Identify breeds of pheasants.	3.2
b. Identify other breeds of game animals.	2.8
c. Identify breeds of turkeys.	2.6
2. Select breeding stock.	3.4
a. Select individual animals on the basis of size, color, vigor, or other desired characteristics.	3.7
b. Select breeds that are adaptable to that area.	3.1

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* Responses from 30 Game Farmers in 12 states. Survey conducted by Department of Agricultural Education, The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

3.		Select equipment.	3.4
	a.	Select incubators that are adaptable for the species.	3.4
	b.	Select hatchers that are suitable for the species.	3.4
	c.	Select brooders that are suitable for the species.	3.4
4.		Prepare equipment for the incubation of eggs.	3.9
	a.	Sanitize equipment.	3.9
	b.	Adjust equipment to optimum moisture and temperature conditions.	3.8
5.		Collect eggs.	3.6
	a.	Collect eggs at frequent intervals.	3.7
	b.	Collect crack free eggs.	3.5
6.		Incubate eggs.	3.6
	a.	Maintain optimum temperature and moisture conditions.	3.8
	b.	Select eggs that are free from damage.	3.6
	c.	Select fertile eggs of normal size and shape.	3.5
7.		Hatch eggs.	3.6
	a.	Maintain optimum temperature and moisture conditions.	3.9
	b.	Place eggs in hatchers at the proper time.	3.8
	c.	Turn eggs at specific intervals.	3.2
8.		Brood chicks.	3.7
	a.	Place chicks in the brooder area at proper time.	3.8
	b.	Maintain feed and water.	3.8
	c.	Maintain optimum temperature and moisture conditions.	3.6
9.		Raise birds.	3.3
	a.	Maintain adequate water supply.	3.7
	b.	Maintain proper feed ration for optimum growing conditions.	3.6
	c.	Maintain optimum temperature and moisture conditions.	3.2
	d.	Trim bills to prevent pecking.	3.2
	e.	Clip wings to prevent flight from captivity.	3.1

10.	Identify disease symptoms.	3.4
	a. Recognize clinical diseases.	3.5
	b. Recognize sub-clinical diseases.	3.3
11.	Treat diseases when observed in flock.	3.6
	a. Administer antibiotics.	3.8
	b. Isolate diseased birds if possible.	3.4
12.	Prepare feed ration with percentages of nutrients for optimum growth.	2.5
	a. Store ration.	2.9
	b. Calculate percentages of nutrients in feed ration.	2.8
	c. Grind and mix ration.	2.0
13.	Control waste of feeds.	3.2
	a. Provide an adequate number of feeders for number of birds.	3.6
	b. Provide approved feeders.	3.3
	c. Fill feeders to two-thirds full.	2.8
14.	Control predatory animals.	3.3
	a. Trap or dispose of predatory animals.	3.3
	b. Build fences or other screening devices.	3.2
15.	Prepare birds for sale or distribution.	3.4
	a. Catch birds.	3.5
	b. Confine birds.	3.4
	c. Inspect birds.	3.4
16.	Dispose of animals through sale or distribution.	2.5
	a. Arrange terms of sale.	2.7
	b. Transport animals to buyers.	2.3
17.	Keep farm records and accounts.	3.0
	a. Maintain farm records that reflect the financial status of the farm operation.	3.2
	b. Maintain financial records that reflect actual cost of producing each flock.	3.0
	c. Maintain feed records on each group of birds that list the amount of feed utilized per bird.	2.8
18.	Evaluate production procedures.	3.0
	a. Calculate the percentage of livability.	3.2
	b. Determine the overall cost per bird for the farm operation.	3.1
	c. Determine the profit or loss for the farm operation.	3.1

d.	Calculate the feed conversion factors.	2.8
e.	Determine the cost of feed per bird for each group.	2.6
19.	Operate game farm and wildlife equipment.	3.0
a.	Service machinery and equipment according to operator's manual.	3.3
b.	Use safety standards relating to operation of a particular piece of machinery.	3.3
c.	Recognize malfunctions of equipment.	3.3
d.	Adjust equipment under field conditions for maximum efficiency.	3.1
e.	Become familiar with operator's manual for each piece of equipment.	3.0
f.	Operate machinery and equipment under a variety of field conditions.	3.0
g.	Attach accessory equipment to basic farm power unit.	2.9
h.	Prepare machines and equipment for storage.	2.9
i.	Maintain records of maintenance and repair on machinery and equipment.	2.8
j.	Maintain a daily log of number of hours each piece of equipment is used.	2.4
20.	Provide preventative maintenance for farm equipment including trucks.	3.1
a.	Lubricate equipment.	3.3
b.	Replace worn parts.	3.3
c.	Sharpen equipment.	3.2
d.	Adjust equipment.	3.2
e.	Clean equipment.	3.1
f.	Perform noncritical welding.	2.7
21.	Provide maintenance for farm buildings by performing subjourneyman tasks in:	2.8
a.	Carpentry.	2.9
b.	Plumbing.	2.8
c.	Painting.	2.8
d.	Electricity.	2.8
22.	Assist in the enforcement of game laws during peak periods of hunter activity.	2.7
a.	Explain local hunting restrictions.	2.8
b.	Refer game law violations to supervisors.	2.7
c.	Patrol assigned area.	2.5
23.	Supervise temporary employees assigned to the farm.	3.2
a.	Interpret directions.	3.4
b.	Train new personnel.	3.2
c.	Plan and administer work schedules.	3.1